

AMERICAN GAS ASSOCIATION MONTHLY

FEBRUARY • 1935

**Commercial Section Launches
Program**

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Gas Dehumidifying Aids Printing
BAYARD P. FONDA

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AMERICAN GAS ASSOCIATION MONTHLY

Contents for February 1935

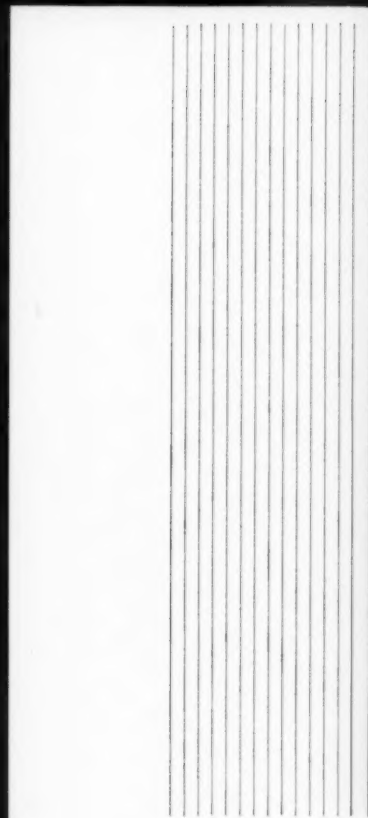
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Photographs courtesy of Anne Shriber. See page 64.

AMERICAN GAS ASSOCIATION MONTHLY

James M. Beall, Editor

Commercial Section Launches Ambitious Program for 1935



F. M. Rosenkrans

WITH an attendance of 28, the Managing Committee of the Commercial Section held its organization meeting at the Cleveland Hotel, Cleveland, Ohio, Friday, December 14. Under the chairmanship of F. M. Rosenkrans, plans were formulated for the current year and the committee chairmen discussed the work which they proposed to cover.

Continuing the practice adopted last year, it was decided to have each committee report on its work in the form of interim bulletins, issued periodically during the year, rather than in the form of one complete report published at the end of the year.

New Committees

The following committees have been continued: Domestic Range, Water Heating, Appliance Servicing, Home Service, House Heating and Air Conditioning, Refrigeration, Space Heating, and Window and Store Display. In addition, new committees have been organized, as follows: Flood Lighting, Sales Bulletin, and Home Modernization. The last named committee is a modification of the former Kitchen Planning Committee and is intended to work with the state liaison

officers and gas companies in advancing the Better Housing Program of the Federal Housing Administration.

H. M. Brundage, Jr., chairman of the Domestic Range Committee, reported that at a meeting held in New York on November 20, the committee had decided that its principal activity for the year would be the sponsorship and conduct of a national gas range sales contest. The proposed contest is to take place any two of the four months of March, April, May and June, 1935. Participants are to be member gas companies of the American Gas Association and their cooperating dealers. The basis of the contest will be the dollar sales of specified gas ranges per domestic range meter.

Domestic Range Contest

Mr. Brundage said that it was planned to divide the cost of the contest equally among participating gas range and range accessory manufacturers, the American Gas Association, and participating gas companies, who will pay a registration fee.

The committee has set up six classifications of companies for registration, varying from 1000 domestic meters or less to 100,000 and over. The three ranking gas companies in each classification will be awarded plaques or certificates and a comprehensive list of prizes totalling \$10,000 will be awarded to the ranking individual salesman in the territory of each winning gas company, whether a utility

salesman or a dealer representative. Utilities may register by systems, companies, branch offices or other groupings, thus permitting competition between divisions of the same company.

The Managing Committee went on record unanimously as approving the contest and the chairman was authorized to request authorization by the Executive Board at an early date.

Water Heating

Reporting for the Water Heating Committee, R. A. Koehler, chairman, stated that the membership had been set up on a regional basis with a member from each of the ten principal geographic sections of the country. Each member was instructed to make a study of the competitive conditions in his region and to make recommendations to the general committee as to what should be done to surmount competition and advance the sale of gas for water heating. It is hoped that a coordinated national plan will be developed from these studies and recommendations.

A manufacturers' subcommittee was appointed for the purpose of securing closer cooperation among water heater manufacturers in the sale of gas heated, hot water service and equipment. This subcommittee will review national sales promotional material and activities of the manufacturer and make recommendations for effective coordination. In addition, it will recommend procedure for the proper size



Meeting of the Managing Committee of the Commercial Section held in Cleveland, Ohio, December 14. Left to right seated—T. V. Purcell, H. R. Sterrett, Herman Russell, F. M. Rosenkrans, C. E. Bennett, J. W. West, Jr., Bernard T. Franck. Middle Row—H. W. Cooper, R. C. Anderson, H. F. Smiddy, B. H. Gardner, J. J. Quinn, H. M. Brundage, Jr., Newell E. Loomis, C. B. Phillips. Rear Row—V. E. Shepherd, H. W. Springborn, Howard B. Hall, F. H. Stone, Lyle C. Harvey, H. D. Lehman, E. C. Adams, E. E. Linburg, David H. Frazer, Jr.

of piping to be used in water heating systems and prepare a plan of manufacturers' coordinated advertising. Another function of the subcommittee is to study and offer recommendations as to the possibility of perfecting arrangements with banks for financing water heating sales.

A subcommittee was appointed on the subject of water heating direct-mail campaign material, with the expectation of preparing a series of direct-mail pieces for gas company use.

Refrigeration

J. J. Quinn, chairman of the Refrigeration Committee, reported that his committee had met in New York on December 5 and set up subcommittees to study and act upon the following subjects:

1. Parts replacement and maintenance and service policies.
2. Dealer sales promotion activities.
3. Economics of combination companies in the sale of gas refrigerators.
4. Flat rate plans for selling gas refrigeration.
5. 1935 refrigeration sales contest.

The Gas Refrigeration Sales Contest Subcommittee has made comprehensive plans for a 1935 sales contest. The subcommittee expects to conduct the contest during the months of April, May and June.

The following resolution presented by B. H. Gardner was unanimously adopted by the Managing Committee:

"WHEREAS, there are at the present time no satisfactory large com-

mercial gas refrigeration units available for sale to gas customers, and

"WHEREAS, there is a great need for such gas refrigeration units, not only for ordinary commercial requirements, but also for summer air conditioning and cooling.

"NOW, THEREFORE, BE IT RESOLVED by the Managing Committee of the Commercial Section of the American Gas Association that such Managing Committee go on record as urging the manufacturers of gas refrigerators to place on the market as promptly as possible suitable gas refrigerators for commercial installations, and

"BE IT FURTHER RESOLVED that the Secretary of such Managing Committee be instructed to send a copy of this resolution to all companies now manufacturing a satisfactory gas refrigerator for residential use."

House Heating

Chairman Rosenkrans stated that it was the consensus of opinion that previous committees had covered the aspects of house heating and air conditioning in their reports so thoroughly as to constitute a manual on these aspects of the business. It was felt, however, that many gas companies, particularly manufactured gas units, were not convinced of the desirability of the house heating load to such an extent as to authorize aggressive sales activities in this field. To meet this situation, it was felt that the committee should approach the subject from the executive standpoint. With this in mind, Herman Russell, president of

the Rochester Gas and Electric Corporation, was requested to act as chairman of the committee.

Mr. Russell said that his company at Rochester had recently completed a very comprehensive study of the desirability of the house heating load and the cost of serving this load. This study was conducted under the direction of A. M. Beebe, who will serve as vice-chairman of the House Heating Committee.

The objective of the committee, according to Mr. Russell, would be to approach the house heating question from the viewpoint followed at Rochester. This would involve developing a formula or, at least, a procedure by which any gas company could determine what its house heating rate should be, how much the company could afford to spend to get the house heating business, and what the net effect upon its revenues would be with a proper rate and sales program. It was further indicated that the House Heating Committee would organize a Subcommittee on Air Conditioning, which would give this subject thorough study.

Home Service

The Home Service Committee, under the chairmanship of Miss Margaret Nevins, held its organization meeting at Syracuse, New York, on January 4. The report of this meeting, covering its proposed activities, will be found elsewhere in this issue of THE MONTHLY.

Appliance Servicing

H. D. Lehman, chairman of the Appliance Servicing Committee, reported

that the following activities would be covered by his committee during the year.

1. A statement to call the attention of management executives to the reasons and the need for proper appliance servicing and to discuss the factors which each company should consider in determining the manner and extent of servicing work.
2. Selection and supervision of appliance servicing personnel.
3. Further discussion of new training methods to supplement previous committee reports on this topic.
4. Control of quality of servicing work.
5. Methods and record for control costs.
6. Control of appliance installation work as it affects proper appliance results and servicing.
7. Methods and necessity of accumulation of field data.

It was stated that the subcommittee chairmen in charge of these activities had been requested to give special attention to any differentiation existing in the appliance servicing activities as between large and small companies, manufactured and natural gas companies, to the end that the reports might be of maximum use to companies under each of these classifications.

Mabon Roper in discussing the work of the Appliance Servicing Committee stressed the point that a higher level of intelligence was necessary in the servicing personnel with the present gas appliances than was previously true with the more simple models generally sold.

Space Heating

R. C. Anderson, chairman of the Space Heating Committee, stated that the committee proposes to furnish the industry with suggested campaigns on radiant heaters, circulating heaters and gas-fired radiators based on successful campaigns with these appliances and including a suggested advertising program for these purposes. The committee, therefore, will be jointly representative of the sales and advertising groups. It is planned to have the committee's report available by March 1.

Window and Store Display

The principal work of the Window and Store Display Committee, of which V. E. Shepherd is chairman, will be the publication of the bi-monthly display bulletin which now goes to approximately 1,200 individuals in the gas industry. Of this number 700 receive it by special request. An effort will be made to obtain photographs of effective window displays from a larger number of gas companies during 1935 for inclusion in the bulletin.

Home Modernization

Bernard T. Franck, chairman of the new Home Modernization Committee, stated that his committee had been organized for the purpose of assisting gas companies with advertising material suggestions and other aids in promoting the Better Housing Program of the Federal Housing Administration. Mr. Franck reviewed the progress of this program in the communities with which he was familiar.

It was evident from the discussion that the success of the program locally was largely dependent upon the local organization setup to encourage the program and the training and supervision given to the community House Committee canvassers.

It was felt that the gas utilities may probably aid the program more by guiding the organization and training of the local personnel than in any other way.

Flood Lighting

The Flood Lighting Committee, which is a joint committee with the Industrial Gas Section, has been organized under the chairmanship of D. H. Frazer, Jr., with H. A. Sutton as vice-chairman. This committee will study flood lighting from the following angles:

1. Comparison of illuminating qualities of gas and other forms of flood lighting. This may necessitate some research work.
2. Servicing and maintenance cost.
3. Continuity of service—tolerance of gas flood lighting equipment for different humidity conditions, present variations, specific gravity, naphthalene, etc.
4. Possibility of developing smaller units for interior use.

5. Advise rates and rate forms for promoting gas flood lighting.

Sales Bulletin

H. W. Springborn, chairman of the new Sales Bulletin Committee, reported that the committee had been proposed by the officers of the Section in the belief that member companies should be better advised of outstanding sales campaigns than has been true in the past and also for the purpose of giving a greater degree of publicity to the activities of the Section itself. He planned to request each member of the Managing Committee to keep him advised of outstanding campaigns in various sections of the country so that the committee might issue a series of bulletins from time to time. The chairmen of other committees were also requested to follow this procedure and, in addition, the manufacturers of gas appliances will be asked to do likewise.

Mr. Springborn explained that it is not the plan of this committee to attempt to give the complete details of each outstanding campaign but to summarize them briefly, listing the company and results so that anyone interested may communicate directly with the company involved. It was his feeling that the activities would supplement the practice of trade papers in printing a rather detailed account of a few outstanding sales campaigns and in this way would not conflict with the trade papers.

In closing the meeting, Chairman Rosenkrans expressed his appreciation for the full attendance, and confirmed his promise to those accepting membership on the Managing Committee to have no further meetings of the committee, barring contingencies that could not be foreseen.

In addition to those mentioned, the following were present: C. E. Bennett, R. M. Conner, H. W. Cooper, D. H. Frazer, Jr., H. B. Hall, Lyle C. Harvey, E. C. Adams, E. E. Linburg, Newell E. Loomis, C. B. Phillips, T. V. Purcell, Dorothy Shank, F. E. Stone, and J. W. West, Jr.

Elected Assistant Treasurer

JOSEPH L. LLEWELYN, of The Brooklyn Union Gas Company, Brooklyn, N. Y., was elected assistant treasurer of the American Gas Association at a meeting of the Executive Board, January 23.

Dehumidifying with Gas in the Printing Industry

In the A. G. A. Monthly of March, 1933, and April, 1934, there appeared reports describing the results of a number of field tests where entire dwellings were air-conditioned with gas throughout the summer. The system used was direct dehydration, which system and suitable apparatus for applying it, were developed under the sponsorship of the Committee on Industrial Gas Research, of which F. J. Rutledge is chairman.

In the January, 1935, issue there was a complete report covering tests where this same system was applied to give relief to hay fever and asthma sufferers.

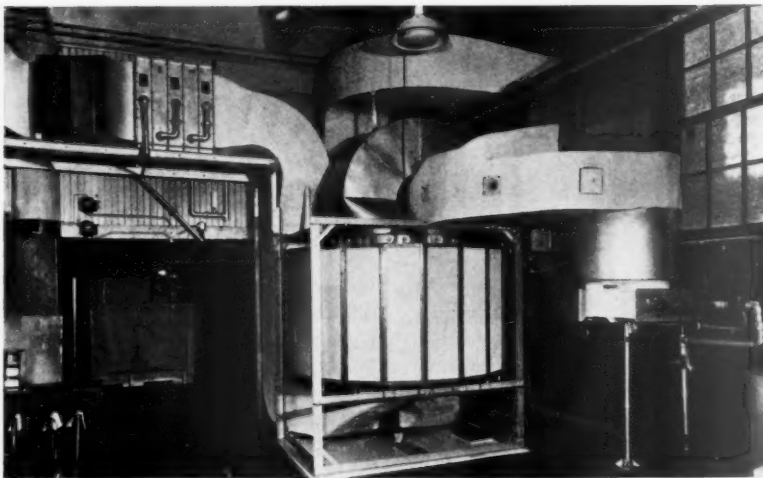
In the following article, a third example of the applicability of gas summer air conditioning is given. While increased comfort is noticed by workers in the plant, the primary objective is to produce an atmosphere that will benefit manufacturing conditions and at the same time produce superior products. The story of how this is being done with gas in one industry should prove of unusual interest to all gas men.

The industrial field for direct dehydration air conditioning is a large one and seems to be best served by the gas system rather than by the more round-about methods employing mechanical refrigeration.

The author, Mr. Fonda, has been closely connected with the development of this dehydration method of air conditioning with gas since it was sponsored by the Research Committee.

WHILE the popular conception of air conditioning is confined to comfort in theaters, stores and residences, a very important field is controlling the atmospheric conditions in industrial establishments.

The successful extension of gas-operated silica gel air conditioning into a widespread and prominent line of business is therefore an event worthy of note. Hence the significance of a statement that just appeared in *The Kalends*, house organ of the Waverly Press, nationally known printers of fine technical books and medical literature, located in Baltimore, Md. Commenting on the successful use of gas dehydration air conditioning in their printing processes *The Kalends* says: "Not only has the gas silica gel plant controlled conditions most satisfactorily, but its operating cost has been



Gas operated silica gel summer air conditioner used for process air conditioning at the Waverly Press

even lower than anticipated. Results at least the equal of those possible of attainment with mechanical refrigeration, are obtained at a fraction of the former's operating expense."

Value of Atmospheric Control

The close control of factory atmospheres during all seasons of the year is of comparatively recent origin. Its value has been shown in a number of manufacturing processes and engineers are convinced that an increasing number of production processes will be carried on in factories, or parts of factories, where the inside atmosphere is made absolutely independent of weather conditions. The necessity for this is being brought about by changing factory conditions, which demand that accuracy and quality of product be maintained, and that delays in production due to changing weather conditions be entirely eliminated.

Among the weather conditions that adversely affect production schedules as well as the quality of products produced in certain lines of manufacture are low humidity in the winter and

By **BAYARD P. FONDA**

The Bryant Heater Company

high humidity in the summer. In fact, it might be said that these are, by and

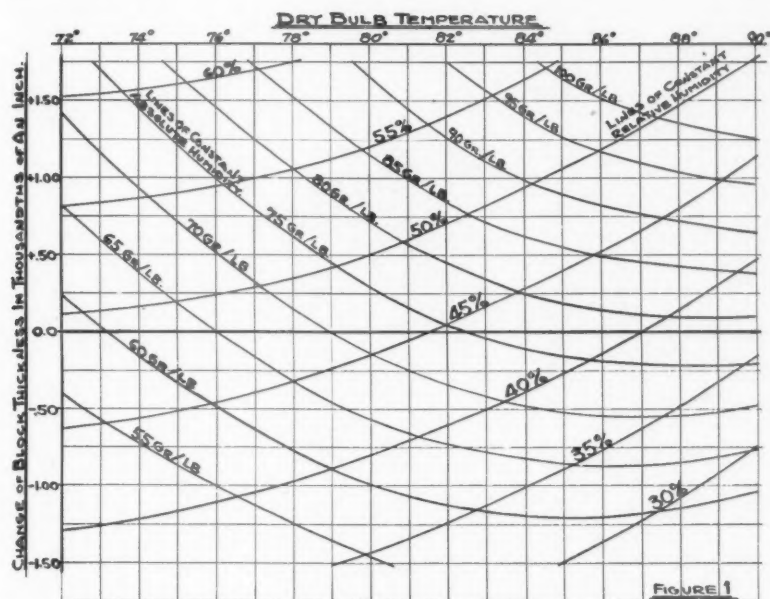
large, the two really important functions of industrial air conditioning, when used in conjunction with air cleaning or filtering.

Winter conditioning, or direct humidifying, was perfected and introduced several years ago, chiefly by the use of sprays which introduce a controlled amount of water into the factory air. Fundamentally this is a rather simple operation and it is extensively used in winter in many industries, particularly textiles and tobacco manufacturing. Extracting excess moisture from the air in summer is not so simple and its general use has therefore lagged.

Printing Problems

The printing industry is an example of an art that can use to great advantage humidifying in winter and dehumidifying in summer.

The problem of variable humidities and their effect on the grade of printing work turned out by printing presses is one which has been recognized and grappled with for many years. Much



lost time and imperfect impressions on account of variations of the condition of the air in the press rooms have aggravated the printer even to the point of shutdowns during unsuitable weather. Modern air conditioning has come to the rescue in this problem.

The Waverly Press, located in Baltimore, Md., nationally known printers of fine technical books and medical literature, realized the desirability of year 'round humidity control in their plant. The condition of the paper, which changed with changes of humidity, has some bearing on the problem, but the principal difficulty was caused by variation in thickness of the cherry-wood blocks on which the metal plates for making cuts are mounted prior to their being placed in the presses. These wood blocks, because of their hygroscopic nature, will contract and expand with changes of atmospheric conditions, making it extremely difficult to maintain the precision demanded in high-grade printing.

Gas Proves Ability

Winter control of humidity has been provided for several years in the Waverly Press, but difficulty in producing precision printing was experienced in the summer. Refrigeration could be used, but this is a round about

and expensive method of obtaining the dehumidifying effect needed. A more direct, simpler and less expensive method was needed. Such a method had been perfected through the use of the principle of capillary attraction whereby the high adsorption qualities of silica gel extract excess moisture from the air. Gas heat is then used to drive this moisture out of the gel, from whence it is exhausted to the outside of the building. Machines for carrying on this operation automatically and continuously were developed under the auspices of the American Gas Association's Committee on Industrial Gas Research and

had proven their ability to perform satisfactorily in a number of comfort air conditioning test houses. The Waverly Press adopted this method of direct dehumidifying and their summer conditioning system uses as its base a machine designed on the above mentioned principles, although it has a capacity four times that needed for an eight-room residence.

This interesting pioneer installation was designed by Howard H. Tunis, research engineer of the Waverly Press, and Bayard P. Fonda, engineer of The Bryant Heater Company, manufacturers of silica gel gas-operated summer air conditioning apparatus. The gas burners were installed and adjusted by the Consolidated Gas Electric Light and Power Company of Baltimore.

Test Equipment

Before designing the humidity control system, it was necessary to study the exact behavior of the wood blocks with varying air temperatures and humidities. These tests naturally had to cover a period long enough to include all seasonal changes in weather and necessitated the use of equipment not available in general test work.

Mr. Tunis devised an instrument which for want of an established name was called a "Hygro-Xylometer."* In order to check the effect of the air on the blocks, hygro-xylometer readings were taken regularly in the composing room and in the pressroom. The instrument consists of a cherry-wood block so connected to a dial indicator



General view of pressroom which is one portion of building air conditioned with gas

* "Hygro-Xylometer"—derived from the Greek "Hygros" meaning "water" and the Greek prefix "Xylo" meaning "wood." The meaning is therefore, a meter for measuring the water content of wood.

that variations in a wood block 0.853" thick could be measured in hundred-thousandths of an inch. The results of these investigations are plotted in Fig. 1. In plotting these final results it was necessary to take into consideration the time of exposure, as it was found that the time element was a factor in changes of block thickness. Occasionally, there was a lag of many hours before the blocks came to their equilibrium thickness in response to a change in humidity or temperature.

An inspection of the curves in Fig. 1 discloses the rather interesting result that the absolute humidity must be increased slightly as the temperature increases to secure uniform block thickness. In other words, when the temperature increases, the consequent drop in relative humidity tends to dehydrate and shrink the wood. On the other hand, constant relative humidity with increasing temperature tends to increase the size of the blocks. Consequently, the condition required for constant block thickness is a compromise between constant absolute and constant relative humidities with changes in temperature.

Selection of Equipment

The first step in designing the system was the selection of the type of humidity reduction equipment to produce the conditions required. A series of calculations were made and estimates were prepared using several methods of producing these desired conditions. Refrigeration by direct expansion and by the air washer method, as well as dehydration by adsorption, were carefully investigated as to first and operating costs. The gas-operated adsorption method is particularly well suited for humidity reduction, and comparison of the several methods indicated that this was the most desirable and economical to employ.

The composing room, as well as the pressroom, is completely air conditioned, because the wooden blocks must be seasoned for many days before being used to make cuts. The blocks must be kept in the same atmospheric condition during this period as when they are in storage or in use on the presses.

The total volume of the conditioned spaces is 134,000 cu.ft. Humidity reduction is provided by a gas silica gel dehumidifier which treats 4,000 cu.ft.

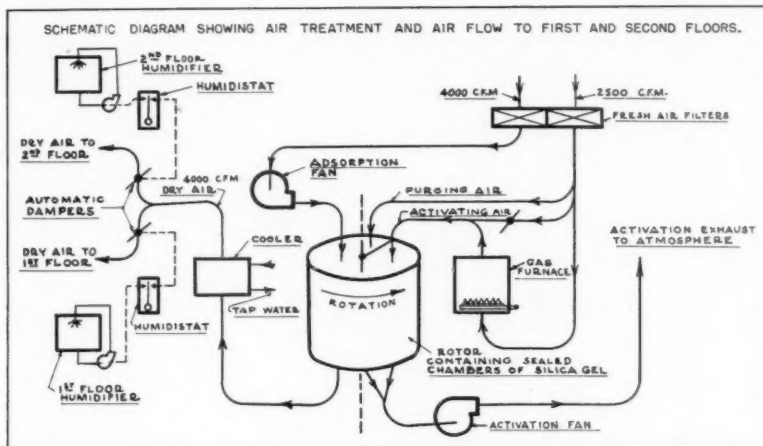


Figure 2

of fresh air per minute. This equipment removes approximately 65% of the moisture from this air, after which the air is moderately cooled and delivered to the various spaces in the plant to be conditioned. Cooling of the dehydrated air is accomplished by direct surface coolers, using city water at a temperature of 72 degrees. No further cooling is required, but a total of 15,000 cu.ft. per minute of air is recirculated locally in the rooms to secure uniform ventilation. Since the thermal capacity of the building is large, the inside temperature rarely exceeds 88 degrees, regardless of outside extremes. An absolute humidity of 72 grains per pound of dry air is provided and this corresponds approximately to a relative humidity of 40% at a temperature of 85 degrees.

A. G. A. Research

The gas-operated dehumidifier design is basically that worked out under the sponsorship of the American Gas Association's Research Committee, being of the continuous rotary type. Re-activation of the silica gel takes place in one sector of the rotor, through which is drawn by means of the activation fan, a stream of heated air. The effluent moisture-laden air is discharged to the outside atmosphere. In another sector of the rotor, simultaneously with the above operation, fresh air is being dehydrated by the gel. Subsequently, this air is cooled by tap water, as explained above, and fed into two main dry air supply ducts. The rotation of the adsorber or container for the gel beds, which has a circumfer-

ential drive, continuously feeds beds of gel reactivated by gas heat into the adsorbing sector and saturated gel into the reactivating sector. This results in continuous operation when and as needed.

Fig. 2 shows the completed installation.

To the right in Fig. 2 is seen the gas-fired activation furnace which heats the air to the temperature necessary to drive the moisture from the saturated silica gel. In the center is the slowly rotating gel bed container, with the fresh air ducts and activation air ducts above it. The dried air leaves the container from the lower side and is conducted to the upper left where it passes through the indirect cooler, already described. Just below the cooler and mounted on the wall, will be seen the damper motors which govern the operation of the distribution dampers to be described later.

The selection of a hygostatic control presented quite a problem as it was necessary to maintain an arbitrary atmospheric condition—a condition somewhat independent of temperature and independent of humidity, as is indicated on the zero deviation line of Fig. 1. The control system described below was finally devised to meet these requirements.

Control System

Each of the two floors which are conditioned has a main dry air supply duct equipped with an automatic damper. A human hair humidistat on each floor operates a damper motor to shut off the supply of dry air when

the humidity drops to the humidistat setting. In the event that both humidists are satisfied, the two dampers automatically open to furnish a supply of fresh air and the dehumidifier automatically shuts down. These humidists, however, are really secondary or actuating controls. The primary control consists of a series of wooden blocks, identical to those used on the presses, so arranged as to greatly magnify any deviation in block thickness. The motion resulting from such deviation is transferred to the adjusting arm of the humidistat, thus shifting the working range upward or downward as required. The "high" contacts on the humidistat open the dry air dampers, and the "low" contacts turn on the sprays in the several humidifier units which are installed. There is, of course, a normal or neutral floating point, where neither the humidifiers nor the dehydrator are called upon to operate. Thus, we see with this arrangement, it is the blocks themselves which dictate the proper atmospheric condition for maintaining constant block thickness.

The maximum hourly operating quantities of gas, power and water required for continuous operation of the dehydrator are 900 cu.ft. of gas of 500 B.t.u.'s, 4 kw.hr. of power, and 240 cu.ft. of 72 degree water. It has been found that under the worst outside conditions, the dehydrator operates approximately three-quarters of the time.

Results

This system was put in operation in the spring of 1934 and the results have been extremely gratifying. Commenting further on the subject of the application of this gas air conditioning system to precision methods of printing, *The Kalends* of the Waverly Press says:

"The result of this system is demonstrated by the study of one month under controlled atmosphere. About 600 cuts were printed and not one was removed from press because of block thickness. With uncontrolled atmosphere, over 25% of blocked cuts had to be removed and corrected for type height."

It is expected that further operating experience with gas summer air conditioning will still further confirm the

THE VOICE OF THE INDUSTRY

By N. B. BERTOLETTE

President, The Harrisburg Gas Company

Having been a member company in the American Gas Association since its inception in 1919, we believe our use of this trade association and its services fully commensurate with its cost, and we are constantly making use of its many services.

We believe the A. G. A. is the voice of the organized gas utility business covering a national scope. Today, there is a necessity for such a trade association to keep a member company informed regarding the entire industry, as well as join member companies cooperatively in efforts to promote the continuance and growth of the modern gas industry, serving both home and industry.

Of the many services made available by the A. G. A., we consider as most important, the following:

1. The value of one's trade association during these days of rapidly changing events.
2. Procurement of up-to-the-minute governmental information as pertinent to our own business.
3. The value of A. G. A. Federal contact, such as on codes possibly affecting us, either directly or indirectly, and the value of contacts with other trade associations.
4. The A. G. A. Laboratory at Cleveland, support of which enables the continuance of tests and approval of proper type appliances. Just as important are the varied types of research work conducted on appliances and their utilization; also on the production, transmission, and distribution of gas.
5. A. G. A. Rate Service, giving up-to-the-minute information regarding types of rates at present effective or recently introduced by various member companies.
6. The broad subject of "Sales Promotion Material" furnished by various branches of the Commercial Section.
7. Studies of operating costs of competitive fuel burning appliances, such as ranges, automatic water heaters and house heaters. This covers critical appraisal of competitive appliances, and such gadgets as the so-called "Gas Savers."
8. Monthly statistical information giving sectional and nation-wide trends as to business conditions in the gas industry.
9. The annual convention with its appliance and equipment display, the latter initiated by A. G. A. and financially carried on by our manufacturers.
10. Study courses for employees, varying from sales administration to courses for salesmen, accounting and operating employees, greatly benefitting member companies as well in improving the value of their employees, operations, results, customer and public relations.
11. In Home Service activities, A. G. A. cooperation with schools and colleges, cooking institutes and magazines, on such matters as household economics, kitchen planning and the training of home economics representatives, has proven very valuable.
12. Sales stimulation plans instituted through A. G. A., such as the recent "Go-Getter" Refrigeration Contest, are extremely worth while.
13. Accident prevention and safety work, and the recognition and awards for services well performed, are all matters well and possibly best handled through a central agency such as A. G. A.

Broadly speaking, Major Forward and his staff at A. G. A. headquarters is a ready and proper place to turn to when perplexing questions arise or new problems face individual companies.

Last, but not least, it also provides an agency for the full exchange of ideas between member companies which can only be properly coordinated and carried on through such a central agency as our own trade association.

value of this advanced method of direct humidity reduction to the printing industry. Its advantage to the gas industry is obvious because it creates brand new load during the summer time.

To Address American Ceramic Society

F. O. SUFFRON, head of the Research Department of the American Gas Association Testing Laboratory, will give an address at a symposium of the Ma-

terials and Equipment Division of the American Ceramic Society at its 1935 Annual Meeting to be held on February 18 at the Statler Hotel in Buffalo. Mr. Suffron's paper, entitled "The Effects of Combustion Methods on Temperature Uniformity of Kilns and Furnaces," will deal largely with the adaptability of gas for ceramic heating purposes. The significance and application of many fundamental findings which have accrued from the several investigations conducted at the Testing Laboratory for the Committee on Industrial Gas Research, will be brought out during this address.

Why We Feature the A.G.A. Approval Seal

FOR more than a year, in all of our promotional advertising, we have stressed the importance to the gas consuming public of the Association's Laboratory Approval Seal. We have done this for the following reasons:

First, to create a customer demand for gas appliances bearing the Laboratory Seal; Second, to encourage dealers in gas appliances to stock and sell only those gas appliances bearing the Laboratory Seal, and, Third, to gradually eliminate appliances on our lines that do not bear the Laboratory Seal.

Since using this type of promotional advertising there has been a noticeable increase in the quality of gas appliances purchased by customers. We have also had commitments from some dealers to the effect that they would only stock and sell gas appliances carrying the Laboratory Seal of Approval.

We have taken advantage of all popular forms of advertising media to describe the importance of the Laboratory Seal and to emphasize it as a valuable guide in the selection of gas appliances. In some of our newspaper advertising we have reproduced photographs showing the actual testing of appliances in the Cleveland Laboratory. In an advertisement on the gas range we had the following to say:

Exacting Requirements

"Your gas range is—or should be—the best designed gas appliance in your home. For a good gas range, to be satisfactory in every respect, must meet more exacting requirements than any other household gas appliance.

"The American Gas Association, of which this company is a member, has invested more than one-half million dollars in its Testing Laboratory at Cleveland. Thus, facilities have been provided to truly test new gas ranges and all other new gas appliances. The good are separated from the bad; and every approved appliance is required to have the blue star approval seal, affixed to it.

"A gas range or other gas appliance does not necessarily need to be costly

By R. F. HINCHEY

**Vice-President and General Manager,
West Texas Gas Company**

in order to be an approved type. Nor can you assume that because a gas appliance is very modern and beautiful in appearance and finish, that it has the blue star, which assures tested merit, however costly it may be. This approval seal represents recognized standards for performance, efficient operation, and substantial and durable construction. Therefore, no gas appliance, at any price, should be purchased that does not have this blue seal affixed to it.

"When shopping for a new gas appliance, ask the dealer to show you only those appliances which have this approval seal—as this is more important than all other considerations combined."

Laboratory Methods

In an advertisement entitled "This Seal Is Your Assurance of Economy in Use of Gas," we devoted considerable space to a description of the methods used by the Laboratory in testing space heaters, and then continued as follows:

"When you go into a hardware or furniture store to look at new radiant or other type room heaters, what qualities do you look for in the heaters shown to you? Isn't it a fact that size, type, appearance and price are about the only points you are readily able to judge?

"Yet there are certain fundamental qualities any room heater you purchase should have, regardless of size, type and appearance. The particular construction of the burners, air mixers, air shutters, cocks, ignition, manifolds, gas connections, flue outlet and other parts make the utmost difference in the performance and safety of the heater—yet, when correct, do not add appreciably to manufacturing or selling cost.

"But you are not able to judge these points and determine whether the heater that appeals to you is so constructed that it has a minimum fire hazard, gives off no carbon monoxide, is economical with gas, is sufficiently

durable and long-lived, and will provide the heating qualities desired. In fact, it has taken a special committee of the American Gas Association since 1924 to formulate a satisfactory yet reasonable set of approval requirements for gas room heaters.

"To know whether or not the new room heaters you purchase meet these carefully drawn approval requirements, all you need to do is to look for the American Gas Association's blue star seal of approval. It will be found on all heaters or gas appliances which have met the laboratory tests, and on none which have not. If you cannot locate this blue seal on the side or back of the appliance, Beware! You do not want to own such a heater at any price—for there are plenty of approved heaters on the market in a wide selection and at popular prices which possess the blue seal.

"When shopping for a new gas appliance, ask the dealer to show you only those appliances which have this approval seal—as this is more important than all other considerations combined."

Blue Star Seal

In one of our direct-mail pieces entitled "More Light on the Blue Star Seal," we reproduced a photograph showing an A. G. A. Laboratory chemist testing a newly designed gas range, and then used the following text:

"The photograph to the right visualizes only one of 160 exacting tests that every newly designed gas range must pass before it can receive the American Gas Association's blue star Laboratory Seal of Approval. Through this association, of which we are a member, nearly 1,000 such newly designed gas appliances will be tested during the current year. Thus, you need only look for the blue star seal on the side or back of any gas appliance you contemplate purchasing. If it is there, you know that the range or heater is reasonably safe, is economical in the use of gas, and is efficient. If you do not find this blue star seal—beware!

"You do not need to purchase an ex-

pensive gas appliance in order to get one that is laboratory approved; and on the other hand, the fact that an appliance is costly, beautiful, and modern in appearance does not guarantee blue star seal approval!

"Merchants and plumbing shops who display the Great American Servant symbol all have at least some gas appliances in their stocks which possess the blue star approval seal. They will gladly show you only approved appliances, if you request this of them."

In another of our direct-mail pieces on house heating, a part of our message ran as follows:

"In seeking for the correct new heating equipment you need, there are two guide posts which have been set up for your assistance and protection. One is the blue star seal which is affixed to every gas appliance approved by the American Gas Association's testing laboratory. The other is the Great American Servant symbol, to be seen on the windows of gas appliance dealers who offer at least some gas appliances which possess the blue star seal."

Reproductions of the Laboratory Seal are made a part of all of our advertising, including calendars, newspaper and direct-mail advertising, bill-

boards, envelopes, and other special uses.

During 1935 we intend to put even greater stress on the importance of the Laboratory Seal.

At the present time we are considering featuring the Seal in Neon signs for all of our stores.

Mid-West Sales Conference

THE ninth annual Mid-West Regional Gas Sales Conference, sponsored by the Commercial Section of the American Gas Association, will be held at the Hotel Sherman, Chicago, Ill., February 14, 15 and 16. W. L. Jones, of the St. Louis County Gas Co., chairman of the sales council, will preside at the opening session.

The keynote address will be delivered by Arthur H. Brayton, of the sales promotion department of Marshall-Field and Company, Chicago. H. M. Brundage, Jr., chairman of the Domestic Range Committee, will discuss the national range sales contest which is being sponsored by his committee. A feature of the first session will be a sound film, "The Heart of the Home," presented by C. A. Luther, of The Peoples Gas Light & Coke Company, Chicago, Ill.

A. E. Schwarz, of the Minneapolis Gas Light Company, Minneapolis, Minn., will preside at the afternoon session, Thursday, February 14. At this session C. A. Miller, of the Electrolux Company, will discuss the plans for gas refrigeration during 1935.

Another topic on the program for discussion is "What the Better Housing Program Means to the Gas Company." Lester Dubberke, of the Milwaukee Gas Light Company, will talk on "Cooking for Profit."

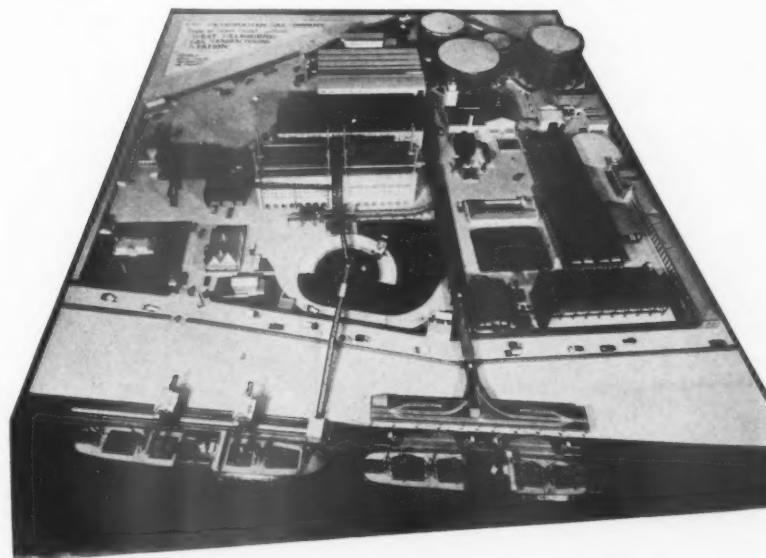
The second day's program, with J. Frank Jones, of the Battle Creek Gas Company, presiding, opens with a paper on "The Prospects for Gas Water Heating," by C. E. Bartlett, of the Ruud Manufacturing Company. Other subjects to be discussed include "Developments in Rental Sales Plans," by M. H. Feldman of the John Wood Manufacturing Company, and "The Market for Upstairs Controls" by Jack Fagan, of Fagan-Andrews Company.

W. R. Evans, of The Peoples Gas Light and Coke Company, Chicago, will preside at the final session, February 15. "What About Flood Lighting?" will be the subject of an address by J. Frank Jones, of the Battle Creek Gas Company. This will be followed by a skit "Planning a House Heating Program," presented by E. J. Boyer and associates of the Minneapolis Gas Light Company. Another skit, "House Heating Via the Telephone," will be presented by W. L. Jones and associates of the St. Louis County Gas Company.

A new feature of the conference this year will be a half day session on Home Service activities Saturday morning, February 16. This session will be under the sponsorship of the Home Service Committee through its chairman, Miss Margaret Nevins of the Syracuse Lighting Company, Syracuse, N. Y.

An interesting program on the part that Home Service plays in sales, home modernization and trade dealer contacts will be concluded by a symposium of three-minute talks on Home Service work in the Mid-West territory.

Miniature Gas Plant at Australian Exhibit



True-to-scale model of the West Melbourne Manufacturing Station of The Metropolitan Gas Company which was exhibited at the Centenary All-Australian Exhibition. Scale: 1 inch to 16 feet

In delivering the opinion of the U. S. Supreme Court in the West Ohio Gas Company cases, Mr. Justice Cardozo said that the court was not unmindful of the argument that the effect of lower prices may be to swell the volume of business and by increasing revenues enhance the ultimate return, but, upon the record before the court, this was guesswork and nothing more. "Present confiscation is not atoned for by merely holding out the hope of a better life to come," he continued.

Portland Gas Employees Form Association

THE Gasco Employees Association has been formed by the operating employees of Portland Gas and Coke Company, Portland, Oregon, with V. L. Berhei as its first president. The association will engage in welfare and social activities and will also represent the employees in their dealings with the company management.

The "Family Gathering"—An Incentive to Better Employee-Customer Relations

REVIVALS seem to be the order of the day. How about a revival of the old-time gas company family gathering?

Most things seem to move in cycles. There was a day when the good old-fashioned family "party" was in vogue not only in the gas industry but in other industries as well. Crude as they may have been, they served a useful educational and social purpose. In all probability the present highly developed employee relations programs grew out of employee gatherings. They served as a means of disseminating information concerning the companies. They developed better employee relations and, incidentally, everybody had a good time.

The time is perhaps ripe for a revival of this old custom. The gatherings can be held at little or no expense. They might serve a useful purpose in these days when expenses must be kept at a minimum and good employee relations maintained at a maximum. The attractiveness of the idea is in its flexibility and adaptability. It is a comparatively easy matter to plan a program to fit any company's need and one which will be entertaining as well as instructive to employees.

Continuous Program Essential

The training program of a utility company should be continuous. This is a generally accepted fundamental principle of employee training. In this time of stress when perhaps, because of expense, elaborate and more complete educational programs must be curtailed, the old family "parties" might well serve to bridge over the depression period and maintain the "esprit de corps" so necessary to successful operation.

Perhaps some gas companies may wish to start such a program and will find the following suggestions, gleaned from the experiences of many, of value.

Experience seems to indicate that

By KURWIN R. BOYES

Secretary, American Gas Association

evening meetings of a combination social and informative nature are most successful. The social features provide a drawing card and serve to balance the more serious parts of the program. Opportunities are thereby provided for employees of different departments to get better acquainted and to better understand each other's duties.

Educational Features

There are many different kinds of social features to be provided, such as amateur theatricals, music by company or outside talent, dancing, etc. The possibilities are so numerous that variety is easily secured. As the main purpose of this article is to offer suggestions on the educational features of employee meetings, the social aspects will be left entirely to the initiative of those in charge. It would be well to bear in mind, however, that entertainment involving employee talent naturally is of more interest than entertainment from the outside.

The purpose of the more serious portion of these meetings might well be to give employees a better understanding of the general operations of their company policies, practices, routines and new methods. There are some things the public, rightly or not, expects every gas company employee to know. An employee is embarrassed when he cannot answer a simple question about service, for instance, and his ignorance reflects against the company. It is generally recognized that well informed employees make for better public relations and tend to reduce operating costs.

Then, too, there are some things every gas company employee should be able to do. For the most part they are so commonplace that frequently it is taken for granted that they are known. For instance, every employee of a gas company should be capable of properly adjusting a gas range burner,

read a meter, compute a gas bill from the meter reading, file a complaint, or tell what kind of gas the company sells. It should not be taken for granted that most employees know these things. It will surprise some executives to learn how many employees do not.

It is conceivable that a gas company might save considerable expense in the course of a year if all its employees knew how to adjust a range. An employee in the home of a friend on seeing a poorly adjusted range burner should be able to fix it. The act saves the customer the trouble of calling on the company, saves the company the expense of sending out a serviceman and, incidentally increases the employee's self-respect. What is more important, it maintains a satisfied customer.

Again, every gas company employee should know how to apply the prone pressure method of resuscitation. The opportunity to save a human life may come to anybody at any time.

Explaining Company Policies

The company family gathering provides an excellent opportunity to explain governmental activities in terms of the local company. It offers, too, a chance to outline rate adjustments, and to present rebuttals to answer any agitation with which the company may be faced. Acquainting the employees with the facts can help a trying situation.

The purpose of a series of such gatherings has been admirably summed up as follows: (1) To secure better understanding of company policies and routines, (2) To give employees the complete picture of company operations, (3) To improve company service and business, (4) To bring about acquaintance, fellowship, cooperation and loyalty to the company, (5) To stimulate interest in the company, (6) To orientate employees regarding outside organizations with which the company deals or cooperates.

Like any other successful activity, the conduct of employee meetings must be promoted by some one with initiative and enthusiasm. In other words somebody must father the movement. Preferably, he should be an executive of sufficient importance to command respect. He should be thoroughly "sold" on the possibilities of the activity and willing to work at it. Too often the job is assigned to a department head without any particular qualifications for this sort of work and who is also too busy with his regular duties to devote the time and attention that a well-planned employee meeting program requires. In addition the leader must have a keen interest in his fellow workers and this type of activity. If he is at all interested he will find enjoyment in the work, as it calls for the exercise of ingenuity and initiative, and also he will have the pleasure of seeing his sowing bear fruit.

Forming Committees

Oftentimes it is advisable to appoint a committee of employees to make the arrangements. In such cases an executive should give his counsel and assistance and should at all times keep the committee enthusiastically at its job.

Poor results in training activities are due in most cases to slipshod, hit-or-miss, made-up-as-you-go, programs—lack of any definite purpose or planned program. Unless a program with an objective is completely laid out in advance, as to time, place, sub-

jects and speakers, the activity should not be undertaken. The results possible from careful planning are more than worth the effort.

When employee meetings are combination instructive and entertainment affairs, naturally they would be held evenings and not on company time. When, however, the meetings are wholly instructive they may be held wholly on company time, part on company time or altogether after hours; company policy, nature of instruction, etc., being factors affecting the decision.

Executive Participation

The frequency of meetings is another consideration worthy of careful thought. If the meetings are to be both instructive and entertaining and are to be held in the evening, it is suggested that a series of six monthly gatherings be scheduled for the winter season. If the meetings are to be purely instructive and held partly or wholly on company time, one every two weeks for a series of, say, ten might be scheduled to advantage. In this case it will be found that a meeting every other week or every week is better for continuity and sustaining interest than at longer intervals.

Executive participation in the company meeting is desirable, especially so in the larger companies. Employee ideas of executives are often based on gossip heresay more than on facts. Executives should preferably appear on the programs as speakers or chairmen, otherwise they should at least

put in appearances. When officers and other executives preside at meetings an operating executive might occupy the chair when operating questions are presented; a financial executive at meetings on financial subjects and so on.

The range of subjects for these gatherings is without limit. That subject of most importance to the particular company should come first. It may be a sales program to cope with a severe competitive situation. It may be the introduction of a new rate schedule designed to secure a certain type of business. Every company has its particular problems which could be solved more easily and satisfactorily if the employees thoroughly understood the company's position. However, no more than one subject should be presented at a single gathering.

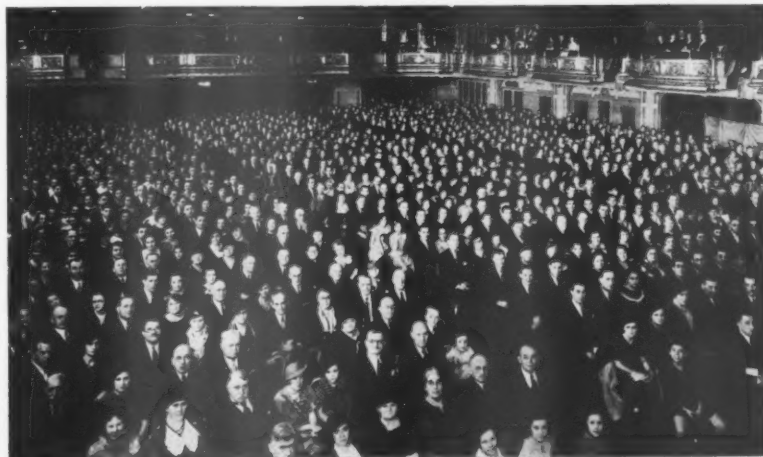
Most gas companies now have home service departments to encourage and improve home cooking with gas. How many of them give demonstrations to employees of their own companies? Gas company employees are far more apt to talk about gas than are outsiders who have but an indirect interest. If our employees are prepared to tell about the proper use of gas, they will do it at every opportunity. The home service department is an agency for stimulating employee interest to increase the domestic load.

Selecting Speakers

An idea which opens up another field of ideas is a demonstrated talk on different types of appliances. For instance, why so many different types of water heaters? What is their adaptation to different requirements?

With the selection of a subject the next step is to secure the right speaker. Not only should he know the subject but, what is also important, he should be able to present it in a pleasing manner. Avoid the speaker who prepares a scholarly and detailed paper and then reads it in a drone that puts everybody to sleep. We have all, no doubt, suffered such a painful experience; why inflict it on others and expect them to enjoy it.

When the speaker has finished his presentation give the employees an opportunity to ask questions. This may result in a discussion which will



Some of the 5,375 persons at the annual party of the Consolidated Gas Company of New York



"Selling 'Em"—A playlet by employees of The Brooklyn Union Gas Company illustrating how to secure leads

be more interesting and of greater educational value than the address itself. Start the ball rolling, if necessary, with a few well chosen questions.

Frequently, movies and film slides can be used to advantage in illustrating talks. Playlets can be staged to effectively dramatize characteristic situations or experiences. When written, staged and acted by employees, these dramatic sketches are always interesting and profitable. Demonstrations on actual equipment frequently are the best means of illustrating a talk. All these things tend to maintain interest and enliven the meetings.

Discussing Conventions

The conventions of national and local gas associations are attended by comparatively few employees from any one company. However, there are matters discussed at every such convention which are of interest and could be of help to every employee. Let it be the job of the fortunate individual who attended a convention to be the delegate of his fellow workers and tell them what took place. Let him pass on the information and enthusiasm he acquired at the convention. A "family gathering" of employees is an ideal occasion to do this.

Perhaps, by this time, the reader is convinced that there are altogether too many complications involved to undertake the planning and conduct

of group meetings. The points covered are really simple matters cited to assure success and are not as bothersome as they may seem. Meetings of this character might well form the backbone of a company educational program and the results obtained more than compensate for the time and effort involved.

One well-known gas company, a few years ago, conducted a series of talks of the nature described with gratifying success. The subjects covered were:

1. Manufacture of Gas—History of the business and description of the different methods of making gas, particularly those employed by the company.
2. Holder Distribution of Gas—Description of how gas enters the holder, how holders are operated and serviced, and how pressure is maintained throughout the district.
3. Street Main Distribution of Gas—Included the laying of mains, installation of services, and the general layout of the company's main system and the work of the street main department.
4. Gas Meters—Their manufacture, repair, proving, etc.
5. Customers' Service Division—Description of the method of setting meters, handling of complaints, installations and the connection of various gas appliances.
6. Transportation Division—Description of the operation of the company's fleet of automobiles.
7. Branch Offices—The method of handling customers, payments collected, meters read, complaints received, applications for gas, etc.

8. New Business Department—Methods of increasing the sale of gas, home service work, the sale of appliances, and assistance given consumers, particularly industrial users of gas.
9. Rate Making—Description of company's gas rates and a general talk on rate making.
10. Public Relations—A very important subject in which great pains were taken to make it as clear as possible, stressing the necessity of maintaining cordial and pleasant relations with consumers. This subject was considered important enough to have the lecture presented by an officer of the company.

Another detail which should be watched carefully is the timing. Start the meeting at a specified time, let the speaker have a definite length of time and make him stop according to the schedule. If discussion is desired allow a limited period of time for it and stop it when that time is up. It is good policy, too, to have a time limit for the entertainment. In other words, use every effort to assure the meetings opening and closing according to the announcement.

The gas company gathering idea cannot be dismissed as being impractical in a large company. Of course it is easier to apply in a small company but it has been very successfully used in large companies by taking departments separately. By coupling departments in different combinations, eventually all will have met together sometime during the series.

The finest morale possible is essential not only in the gas industry but in every business in these times. A thorough and frank understanding between employee and employer makes for teamwork in any company. Why cannot this quaint old custom of getting the company family together be one means of accomplishing this altogether desirable condition?

Gas Ranges for Los Angeles Schools

THE Los Angeles Board of Education has purchased 500 modern, clock-controlled gas ranges for use in school home economics departments. American Stove Company, Gaffers & Sattler, Jas. Graham Mfg. Co., and O'Keefe & Merritt participated in the order. Not bad for a city with municipally owned electric distribution!

—P. C. G. A. News Letter.

Zimmerman Hits T. V. A Yardstick

THE Federal policy of competing in the power business cannot be considered longer in the light of an experiment and it is difficult to believe the people are going to be better off under government ownership and operation of utilities, John E. Zimmerman, president of The United Gas Improvement Company, said January 10 in an address at the Wharton School of Finance, University of Pennsylvania. He asserted the history of government ownership in this country had demonstrated the impossibility of business enterprises being conducted successfully by any political organization.

Mr. Zimmerman assailed the using of figures based on the Tennessee Valley Au-

thority as a yardstick, pointing out that taxes of private utility companies usually run from 10 to 20 per cent of their gross revenues, whereas the T. V. A. is only required by law to pay 5 per cent on the wholesale price of its energy. He added: "Let it be noted that municipally owned distribution systems usually pay no taxes. If the Tennessee Electric Power Company had the same advantages of subsidies, then its taxes would be \$200,000 instead of \$2,000,000."

"No one, of course, can state with any degree of assurance that the rates now charged by the T. V. A. will pay the cost of operations and a proper return of the actual investment, and until that has been demonstrated, how can it be urged with any degree of fairness that the electric companies throughout the United States should follow in the footsteps of the

T. V. A. and adopt their rates?" he asked. "In my judgment," he said, "experience will prove that when all the elements of cost have been properly taken into consideration, the T. V. A. rates will produce enormous losses for the government."

"Every day I read in the newspapers of more and more plans fathered by the Federal government for the planning, regulating and regimenting of the lives of the people," he concluded. "Illustrations of this can be found in the activities of the Tennessee Valley Authority, and those now proposed for the Missouri Valley, the Mississippi Valley, and in numerous others. This kind of thing does not appeal to me and I doubt if it has any appeal for you men."

"To me life should have the charm of an adventure and unless it possesses the salt of adventure, I don't care to have any of it. That thing which is worth having is worth fighting for. I want that liberty which gives me the right of choice and the right to regulate my own life. To be assured of a roof over my head and enough to eat, provided I become a cog in a vast government machine, is not the kind of a life that should have an appeal for any man with red blood in his veins."

Chicago Company Interprets Convention to Its Employees

IN line with its policy to keep its officers, department heads and employees advised of developments in the gas industry as reflected at the annual convention of the American Gas Association, The Peoples Gas Light and Coke Company, of Chicago, has issued a 37-page mimeographed report commenting on the highlights of the 1934 convention.

The report has been distributed to 220 department heads who have been instructed to draw the attention of their assistants and others to it. The company makes it possible for interested employees to obtain additional copies by applying to its Training and Education Division, and complete copies of convention addresses and papers are kept on file in the company's library.

B. J. Mullaney, vice-president, in a foreword states that briefly and clearly the report presents the high spots of the 1934 convention, and "is therefore the best available reflex of what the industry is doing, thinking and talking about." The report is entitled, "The Gas Industry in 1934" and a digest is made of the principal addresses delivered before both the general and sectional meetings.

The report incorporates the TVA resolution adopted by the convention and devotes considerable space to the papers on mass selling and to the addresses made by W. W. Winter, H. L. Masser, George E. Frazer, Ward M. Canaday and Dr. Neil Carothers.

It is highly complimentary of the exhibition of apparatus and appliances, and declares that the 1934 exhibition is an indication of the increased interest shown by gas companies in this phase of their operations. The first fifteen pages are devoted to an analysis of General Sessions and comment on the exhibition.

Each sectional program is then analyzed

from the point of view of outstanding papers and reports of interest, particular attention being paid to the program of the Commercial Section and the papers delivered there on new business promotional methods. In describing the meeting of the Home Service Committee the report states that the "energetic and enthusiastic participants in this convention feature set a mark for the men by beginning work at breakfast—8:30 A.M. and keeping at it practically all day."

Considerable space is devoted to the meeting of the Natural Gas Department and the report closes with a listing of new officers and directors, of the Association, a short review of the career of President Young, and the new officers of the Natural Gas Department and the Association's several sectional organizations.

For a number of years The Peoples Gas Light & Coke Company has made it a point to keep its employees advised of developments at the Association's annual convention, sometimes by means of a report as was done for the 1934 meeting, and sometimes by means of a mass meeting of employees at which the company's delegates to the convention delivered a detailed analysis of the most important subjects discussed. On frequent occasions, Mr. Mullaney has expressed the thought that the story of an annual convention of the Association should be carried to the rank and file of the industry by the company delegates who are in attendance.



"So you sent a dollar for that appliance to keep your gas bills down. What did they send you?"
"This paper weight."

William H. Thompson Dies

WILLIAM H. Thompson, for sixteen years secretary of the Ohio Gas and Oil Men's Association, died at Columbus, Ohio, December 13, 1934, at the age of 65.

Mr. Thompson was a native of Ohio. He studied law and practiced for many years in Mt. Vernon and Cleveland, much of his practice having to do with the gas and oil industries.

When the Ohio Gas and Oil Men's Association was organized in 1918, Mr. Thompson was elected secretary-treasurer of the association. He served in that capacity until his health failed several months ago. He was a director of the old Natural Gas Association of America and had a nationwide acquaintance among gas and oil men.

F. M. Banks Made Vice-President

APPOINTMENT of F. M. Banks as vice-president in charge of sales of the Southern California Gas Company was announced recently by A. B. MacBeth, president of the company. In February, 1934, Mr. Banks was elected to the board of directors of the company.

In 1927 Mr. Banks was placed in charge of the company's operations in the San Joaquin Valley division, where he remained until 1930 when he returned to the Los Angeles headquarters as general superintendent of sales. He is a director of the Pacific Coast Gas Association and a member of several important committees of the American Gas Association.

Utilizing Manufactured Gas Equipment for Peak Loads on Natural Gas Systems

DURING the last decade the spread of natural gas pipe lines over the country and the growth of its business has been phenomenal, particularly in the large centers of population. The initial problems of the securing of adequate natural gas supplies, pipe line construction and utilization of this product in existing distribution systems are rapidly disappearing and their relative importance has been superseded by the economic factors involved in providing peak load facilities. Merchandizing of the product through mass selling and other aggressive sales policies has met with marked success and in some instances the rapidly accelerated growth of load and resulting accentuated peaks have or shortly will tax the capacity of the pipe lines during periods of high demand.

Present conditions now demand much greater concentration of thought on the dependability of consumers service than previously existed. The natural gas distributor is paying more attention to his present and future loads and necessity requires that methods be provided for increasing the load factor in order to extend his business and make it more profitable.

It is generally recognized that the outlet of greatest sale in the higher

By **ALFRED JOHNSON**
and
CHARLES E. HEMMINGER
Combustion Utilities Corporation,
New York, N. Y.

income producing class of business is the house heating load, but the peaks resulting from house heating service are of sharp intensity and short duration governed by weather changes which are often sudden and severe in character. Burners are operated for less than 240 days per year which coupled with the sharp peaks results in a low load factor, generally not exceeding 27 per cent. More significant however is the fact that the sharp peaks represent but a small part of the total quantity of gas used.

Demand Curve

The severity of the peaks and the relationship of quantity to demand is graphically shown in Chart I, House Heating Demand Curve, which is based on the average daily temperatures of a typical Mid-western City for the heating season of 1933-34. The area above 50 per cent of the demand has a load factor of but 3.1 per cent while the area below has a load factor of 44 per cent for this year and location. The overall load factor is

but 23.6 per cent. Taking the same location and plotting a similar curve based on the average daily temperatures over a period of years, it is found that the top 50 per cent of the demand has a load factor of 7 per cent, representing 12.7 per cent of the annual volume while the lower 50 per cent of demand has a load factor of 47.9 per cent and carries 87.3 per cent of the annual house heating volume. The annual load factor on the total demand is 27.4 per cent.

If the pipe line is called upon to meet the full peak demand, a rapid decrease in the line load factor results so that actually a large part of the pipe line investment appears as a fixed charge on the delivered gas for reserve capacity only. As the growth of house heating continues it therefore becomes necessary that the distributors of natural gas carefully appraise the peak situation. They are confronted with the problem of providing reserve capacity either by building new lines, providing supplemental peak load gas, or abandoning load building efforts. Obviously, the latter should receive little consideration.

If the pipe line is not loaded the same economic conditions are apparent as the demand on the line largely dictates the cost of gas. Revenue from

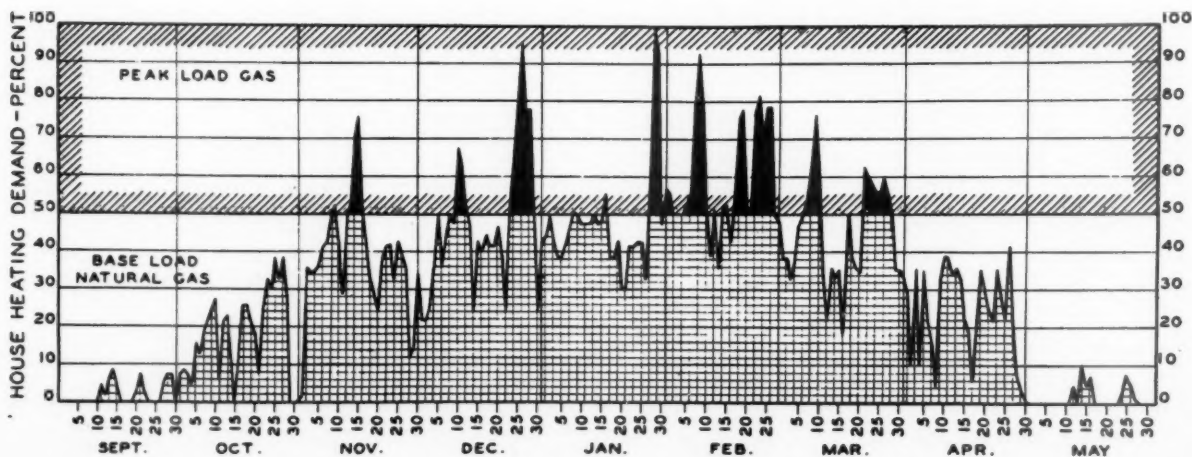


Chart I—House heating demand curve for a mid-western city. Heating season, 1933-1934

dump gas sold during off-peak schedules is a relief during load building periods but is not an economic answer to peak load demands as it must find outlets at a price competitive to cheap solid fuels.

It would appear that the solution to the peak load problem is that of providing a supplemental peak load gas. Where carburetted water gas plants have been abandoned they can be reconditioned for this high B.t.u. gas production service or new plants can be constructed at reasonable cost. Many different methods have been developed during the past few years as this problem became more apparent. These processes are modifications of the carburetted water gas set using either all oil, or oil and coke for fuel, natural gas reform, former oil gas process and for small communities butane, or propane modified with air or reformed gases. The various processes have been discussed by L. J. Willien before the Natural Gas Department of the American Gas Association at the 1934 Convention. It will not be the purpose of this article to discuss the operating features of these various processes but rather the economics involved in supplying manufactured supplemental peak load gas. It is essential that the manufactured gas shall have equivalent burning characteristics as that of the distributed gas to avoid utilization complaints.

Determining Costs

As the cost of natural gas is made up largely of fixed charges the length of line and load factor on the line determines the cost of delivered gas. The cost of manufactured gas on the other hand is made up largely of production materials and labor expense and low fixed charges. It is thus apparent that under conditions of low load factor, and relatively long natural gas transmission lines that an economic division exists for the use of the two gases, natural gas to carry the base load and part of the peak load and a supplemental peak load gas for sharp peaks of demand. While the variety of conditions in each locality makes a detailed discussion of the problem impractical, consideration of the more salient factors should, in general, indicate the economic possibilities of manufactured gas for the

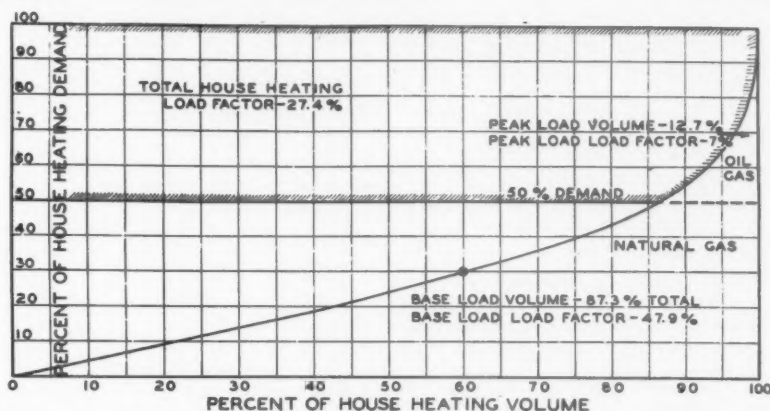


Chart 2—Relation between house heating volume and demand with and without peak load gas

sharp peaks of the house heating load.

Load Factor

The relation between house heating volume and demand with and without supplemental peak load gas is shown on Chart II for a location having approximately 6300 degree days deficiency. In a similar location experience has shown that the maximum daily demand for house heating customers is 2 MM B.t.u. and that the annual consumption is 200 MM B.t.u., or that the maximum daily demand is one hundredth of the yearly consumption. For 1000 B.t.u. natural gas, the

maximum daily demand is therefore 2000 cu.ft. and the annual consumption 200,000 cu.ft. For purposes of analysis it is possible to determine the base load factor for each per cent of house heating demand and in turn the volume of this gas for each per cent to be divided between supplemental gas and natural gas. For example, a separation between base load gas and peak load gas at 50 per cent of the maximum demand results in an improvement in the house heating load factor from 27.4 per cent to 47.9 per cent by peak load oil gas as shown in the following tabulation:

Without Oil Gas	Volume MM B.t.u./Yr.	Per cent	Demand MM B.t.u. Day	Per cent	Load Factor
Total HH Load	200	100	2.0	100	27.4
At the 50% Division					
Base Load Natural Gas	174.6	87.3	1.0	50	47.9
Peak Load Suppl. Gas	25.4	12.7	1.0	50	7.0

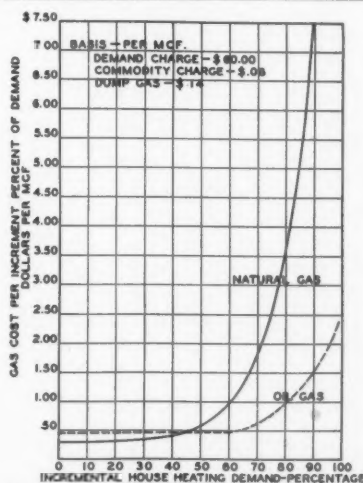


Chart 3—Incremental house heating gas costs. Cost of house heating gas per M cu.ft. for each added per cent of maximum house heating demand

From a house heating demand and volume curve, which can be drawn from any location, it is thus possible to obtain system volume load characteristics and the allocation of demands and volume to the two sources of supply. The relative cost of the two sources of gas supply, considering dump gas credits, will dictate the most economical division of the load between base load gas and supplemental gas and will determine if peak load supplemental gas is economical.

As the cost of natural gas at the city gates and the production cost of supplemental gas is variable depending upon the length of pipe line and field costs for the former and the process used, and in turn materials and labor cost for the latter, it is necessary for the further analyses of the economic

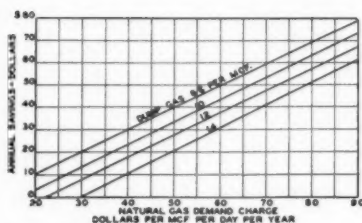


Chart 4—Annual savings per house heating customer. 1000 B.t.u. natural gas system

division of the two gases to assume a location and the cost of natural gas and supplemental gas. For purpose of discussion the following typical assumptions are made.

Location—Mid-western section of the country having a degree day deficiency of 6200-6500.

Natural Gas Cost—Length of pipe line approximately 600 miles, natural gas demand charge \$60.00 per M cu.ft. of maximum demand, natural gas commodity charge \$.08 per M cu.ft.

Dump Gas Credit—\$.14 per M cu.ft.

Supplemental Gas Cost—This cost will vary with process and materials, labor standby, and investment charges. All oil operation is assumed in an existing carburetted water gas plant converted to that type of operation. Fixed charges on conversion investment, materials, labor, etc., with oil costs at \$.03 per gal., can be taken at approximately \$.50 per M cu.ft.

With this information it is possible to compute costs of the two gases at various load factors and plot the results as shown graphically on Chart III. In this chart the cost of supplying each per cent of the demand is plotted for both natural gas and supplemental gas. From these curves the cost of gas to supply that portion of the incremental demand between 20 and 30 per cent of the total is \$.26 per M cu.ft. of natural gas and \$.48 per M cu.ft. for supplemental gas, but for the portion between 70 and 80 per cent the costs are \$2.60 and \$.70 per M cu.ft. After 50 per cent of the househeating demand the natural gas costs are higher and it is more economical to supply the last half of the demand with peak load gas. It is significant that the last part of the demand if carried by natural gas would cost over \$5 per M cu.ft. Under the conditions and locations assumed it is evident that supplemental gas for peak load use has a decided economic advantage over that of supplying this portion of the load with natural gas.

The savings or profits from the use of a supplemental gas for peak load

use will obviously vary as the pipe line investment or demand charge changes and the price of dump gas changes. As the cost of supplemental gas should not vary to an appreciable extent the production cost can be taken as a constant and the economics of peak load application computed for variable conditions of pipe line investment charges and dump gas credits.

The annual savings per house heating customer due to peak load supplemental gas is shown graphically on Chart IV. The curves are obtained by computing the cost of supplying an average house heating customer with and without peak load gas and the differences plotted. The degree day deficiency, total annual consumption per customer, daily demand and cost of manufactured gas is held constant with that used previously and the demand charge varied from \$20 to \$90

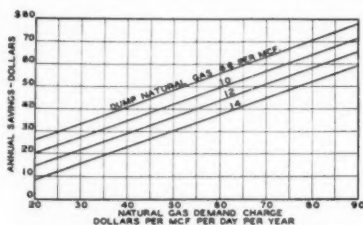


Chart 5—Annual savings per house heating customer. 800 B.t.u. mixed gas system, coke oven and natural gas

per M cu.ft. of maximum daily demand. The commodity charge for natural gas is maintained at \$.08 per M cu.ft.

It will be seen that peak manufactured gas is profitable for even a \$20 demand charge which would be the equivalent of a 250-mile, large size natural gas pipe line. The annual saving per house heating customer with a \$60 demand charge and a dump gas credit of \$.12 is approximately \$37 per year.

Possible savings in the case of a mixed gas system distributing coke oven gas and natural gas are shown on Chart V. The same factors hold as in the case of all natural gas. The coke oven gas price has been taken at \$.16 per M cu.ft. and no investment charge for coke oven gas has been used or consideration given to the extra coke oven gas not used in the summer. These advantages can be gained either by manufacturing an 800 or a 1000 B.t.u. supplemental gas.

While it is difficult, due to the many variables that must be considered, to

evaluate the economic advantages of peak load manufactured gas as applied to an entire system distributing natural gas, Chart VI shows the general trend of how the gross profit per system meter increases and then decreases as the sales price of house heating gas is decreased and greater saturation results. The situation considered here is that of a community served by a 550-600 mile pipe line. The per cent saturation or number of house heating customers secured at various prices for natural gas was taken from experience charts of typical communities serving natural gas. It is assumed that for this locality the competitive fuel cost of coal is \$6 per ton and other costs taken the same as that previously outlined for Chart III.

Saturation

While it has been assumed that increase in saturation results from decrease in the sales price of house heating gas, many other circumstances may work in the same direction. Competitive fuel prices may tend to increase, rate cuts may be required by regulatory bodies or the earning capacity of the customers may increase during periods of economic stability. The curves show that after a given saturation is reached the gross profit decreases as the gas price is lowered to obtain new customers. This gross profit is on production costs alone before distribution costs. The total system profit is obtained by multiplying the profits per meter by the number of meters in service. The use of peak load gas thus enables a system to increase its house heating business beyond its previous economical limit and

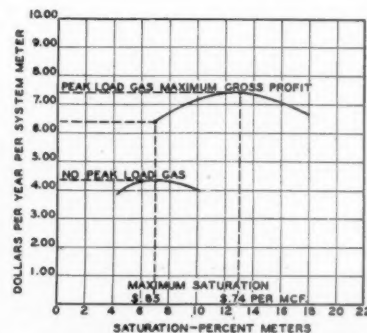


Chart 6—Effect of peak load gas on total gross profit per system meter. 1000 B.t.u. natural gas system. Basis—Demand charge: \$60.00 per M cu.ft.; Coal: \$6.00 per ton

to enhance its gross profits from house heating gas.

Peak load equipment is of as much advantage to pipe line companies as utilities. Where gas is sold on the basis of demand and commodity charges, the reduction of the severe line demand peaks makes house heating gas more profitable and permits an expansion of house heating sales and greater profit to the pipe line. In the case where gas is sold on a flat rate throughout the year, the pipe line company is assuming the burden of supplying the peak load gas. Here, in the overall, it would be more profitable for the utility to operate a peak load plant thus providing a better load factor for the pipe line which will in turn release a greater quantity of pipe line gas for sale either to other communities or an extension of sales in the same community without new pipe line construction. Both pipe line and utility should benefit.

Use of Existing Equipment

The use of existing carburetted water gas plants modernized for the production of a supplemental gas that will meet the full utilization requirements of appliances adjusted for natural gas will not only prove profitable for peak load use but will also provide production facilities for emergency operation in the event of pipe line failure. The investment in plant equipment is made of service to the utility and contributes a valuable asset to the distributor. As such there can be no question of continuing the investment in plant capital account. The earnings of the utility are enhanced from peak load operation and the customers of the system are protected against suspension of service and the attendant hazards should the natural gas flow be interrupted because of pipe line failure.

In many situations the erection of new generating and auxiliary plant equipment should prove profitable for the production of peak load gas. As previously set forth the demand released from the pipe line can be utilized for high load factor business and the peak load plant act as a shock absorber to supply the sudden and severe demands of the house heating load.

Many utilities recognizing the ad-

vantage of supplemental gas for peak load demand have continued plant operation in conjunction with the supply of natural gas and are distributing a mixed gas of from 600-800 B.t.u. The carburetted water gas plant is then operated to produce a low B.t.u. gas or to reform natural gas during periods of low demand while for periods of high demand high B.t.u. carburetted water gas is produced. It is however necessary for severe and extended peak loads to manufacture a gas of the same calorific value, gravity and utilization characteristics as the mixed gas normally distributed.

While it is not the purpose of this article to discuss the relative economies of the mixed gas system using carburetted water gas for peak load with that of distributing straight natural gas supplemented with an equivalent B.t.u. gas for peak load, mention will be made of the factors that influence the final cost of gas for the two systems. In both, the objective is the same, viz., to utilize natural gas for the base load and continue the demand on the natural gas pipe line until the cost of the natural gas, as influenced by the load factor, exceeds the cost of the supplemental source of supply.

Results of Study

In the foregoing discussion of the economics of producing supplemental gas for peak load natural gas demand it was found economical to use natural gas for fifty per cent of the house heating demand which in turn has a load factor of slightly more than 48 per cent and represents 87 per cent of the gas consumed for house heating purposes. As the normal base load or firm gas of a distributing system has higher load factor than the house heating load, all of this gas and 87 per cent of the house heating load can be supplied profitably on low cost straight natural gas, leaving but 13 per cent of the house heating volume to be supplied by peak load manufactured gas.

If the house heating and firm gas loads are equivalent then but 6.5 per cent of the total gas sent out would be made up of supplemental manufactured gas, an amount in total less than the normal lost and unaccounted for gas of a given system. The plant is operated less than 60 days per year

and then on partial schedule only. The full complement of natural gas is used and no high cost low B.t.u. gas or reformed natural, with its consequent 5 per cent to 8 per cent thermal loss on conversion, makes up a part of the logical base load supply.

In the mixed gas system the conversion cost of manufactured gas including labor, power, steam, maintenance and miscellaneous production supplies and fuel for gas making purposes carries on 365 days out of the year. Large volumes of base load gas are produced when but a small quantity of peak load gas is actually required to meet the sharp peaks of high demand. Natural gas reformed during the summer months while less costly per therm produced, if charged against production at commodity rates, could be sold at an equivalent of greater return in most instances as off-peak or dump gas.

Other Factors

The relative economics of the two systems, mixed gas or a straight natural gas, supplemented with peak load supply, revolve largely around the factors briefly discussed above. In the end the selection of the system to be adopted should include a careful analysis of production costs of the base load low B.t.u. gas used to reduce the calorific value of natural gas to the mixed gas system standard in comparison with the cost of natural gas at a load factor in excess of 50 per cent, resulting from the use of natural gas peak load equipment. Other factors which should receive careful consideration are:

1. The manufactured gas plant supplying the low B.t.u. gas must also be capable of producing a satisfactory gas that is interchangeable with that of the mixed system gas for severe peak loads and for emergency purposes.
2. The added duty imposed on the distribution system in transmitting and distributing a gas having 25% less thermal capacity per cu.ft.
3. The added plant investment required over that of supplying a higher B.t.u. gas for peak load demands.
4. From a long range viewpoint, the possibility of off-setting the winter demands of the house heating load with a summer demand for air conditioning and cooling, which would further accentuate the loss due to the relative cost of manufactured gas per therm supplied over

that of natural gas supplied at a high load factor.

In conclusion it would appear that the manufacture of a high B.t.u. supplemental gas to augment the natural gas supply during periods of high peak demands should not only enhance the return of the distributor but should also increase the profits of the pipe line company serving the utility. The customers will further be assured of a continuous gas supply in the event of a pipe line failure and the wider resultant sale of natural gas for house heating and other home uses should assist greatly in making the community natural gas conscious and friendly to the utility and pipe line company.

David H. Frazer Is Dead

DAVID H. FRAZER, president and treasurer of the Battle Creek Gas Company, and prominently identified with Michigan utilities corporations over a long period of years, died January 13 in Ann Arbor, Michigan. Mr. Frazer's death followed an illness of about one year and a half. He was 57.

Mr. Frazer was born in Chicago, March 14, 1877. As a young man he went to Springfield, Mo., where he worked for the Springfield Gas Company, owned by his grandfather. In 1902 he took over the management of the Battle Creek Gas Company. He became president of the company in October, 1918, which position he has held ever since.

Mr. Frazer was a leader in the gas industry in Michigan. In 1908 he served as president of the Michigan Gas Association. He was a member of the American Gas Association and served as a director on many utility company boards. He was president of the Chamber of Commerce in 1907 and active in many club and business organizations.

Besides the widow, Mr. Frazer is survived by one son, David H. Frazer, Jr., three daughters, Mrs. Harry K. Wrench, Mrs. Edward X. Tuttle and Mrs. Delbert S. Ford, his mother, Mrs. Mary Louise Sperry and ten grandchildren.

Texas Welding Conference

THE Texas Technological College, Lubbock, Texas, is holding its first annual welding conference on electric and oxy-acetylene welding February 14 and 15, 1935.

All manufacturers and jobbers of welding equipment are invited to display and demonstrate their equipment and all persons interested in welding are invited to attend.

Gas Exhibit at Automobile Show



THE Grand Rapids Gas Light Company was one of a limited number of outside exhibitors who were offered space to exhibit at the 26th annual Grand Rapids Automobile Show, held in the civic auditorium, January 8-12. The space occupied by the gas company was 50 feet wide by 18 feet deep.

The accompanying photograph shows a partial view of the display, a feature of which was a section conducted by the Home Service Department where foods were baked, exhibited and given out to visitors. Two prize contests were held, offering a gas range and a gas refrigerator as prizes.

In addition to the entertainment provided by the Automobile Show—and which as a drawing feature also included the nightly award of an automobile to the lucky holder of the winning number—the gas company engaged the services of the Wolverine Four, leading male quartet of the city, which sang at the gas company exhibit, and gave a few numbers nightly on the main stage by courtesy of the company.

The official report gave the total attendance at 42,500 and the company's officials feel that practically all of this number paid a visit to the gas company's display.

Theft of Gas Booklet

A LIMITED number of copies of "A Compilation of State Laws on the Theft of Gas in the United States," as revised to January 1, 1934, are still available at Association Headquarters to delegates of member companies.

Unique Booklet on Government Ownership

A. J. WAGER, president, and R. A. Aschenbrener, secretary and treasurer of The Triple Insulaire Company, Milwaukee, Wisconsin, are the authors of a story entitled "The Three Little Meters and the Telephone Become 'Dam Conscious,'" which points out the fallacies of the government water power projects in a most unique manner.

The authors of this interesting little book are using the basement of your home for their stage. You, your wife and your children are the audience. The characters are your own servants. These servants are Washo, your water meter—Wattso, your electric meter—Gaso, your gas meter—and Hello, your telephone. The subject discussed is Private vs. Government Ownership of Utilities.

The book covers the heretofore technical and perplexing story of private and public ownership in a simple and convincing manner. It should prove a constructive and useful force in teaching the dollars and cents necessity of private ownership of utilities.

A sample copy can be secured by sending 25 cents with a letter to The Triple Insulaire Company, 161 W. Wisconsin Avenue, Milwaukee, Wisconsin.

Recent Visitors to A. G. A. Headquarters

E. L. Oppenheimer, United Gas Improvement Co., Philadelphia, Pa.
Merrill Davis, S. R. Dresser Manufacturing Co., Bradford, Pa.
C. F. Turner, The East Ohio Gas Co., Cleveland, Ohio.
W. W. Young, Connecticut Light & Power Company, Waterbury, Conn.
Wm. T. Jebb, Connecticut Light & Power Company, Hartford, Conn.
Miss Marian B. Sanford, Woman's Home Companion, Paris office.
H. S. Christman, The Philadelphia Gas Works Co., Philadelphia, Pa.
F. L. Griffith, The Peoples Gas Light & Coke Co., Chicago, Ill.
W. H. Foot, Commonwealth & Southern Corp., Jackson, Mich.
Mrs. Martha Gould, Rhodes Department Store, Tacoma, Wash.
H. O. King, Standard Gas Equipment Corp., Boston, Mass.
T. J. Strickler, Kansas City Gas Co., Kansas City, Mo.

Service Charge Rate Schedules for Natural Gas Service

By E. W. BOWNESS

Vice-President, The Canadian Western
Natural Gas, Light, Heat & Power Co.,
Ltd., Calgary, Canada

It is too early to give definite information as to the results of the new promotional rates put into effect by the Northwestern Utilities Limited, the domestic schedule having been in operation about four months and the commercial and industrial schedule only about two months. The following facts however are significant:

Edmonton is a city of approximately 75,000 inhabitants. The company to date has recovered more than 400 domestic heating loads. It has secured fifteen new customers on the commercial and industrial schedule with annual revenues varying from \$400.00 to \$1,500.00 per customer. It has also secured some very attractive new business on the Special High Load Factor schedule, including the largest hotel in the city which generates its own electric energy and uses exhaust steam for heating, and which will give an annual revenue to the company of about \$15,000.00.

The success of the new rates in the judgment of the company's management is such that, after making allowance for reduction in existing customer's bills due to the new rates, they have budgeted for the following increases for 1935:—

Domestic (principally space heating)	\$50,350.00
Special High Load Factor Rate	29,340.00
Commercial and Industrial Rates	22,066.00

NORTHWESTERN UTILITIES LIMITED serves Edmonton and several small towns and villages in Northern Alberta with natural gas. Since its Edmonton franchise was granted in 1912, the company has sold gas under two block rate schedules as follows: (A) A "Domestic and Commercial" schedule with an initial block of 60 M cu.ft., which is in effect a straight line rate to all domestic and smaller commercial consumers except during severe winter months. (B) An industrial schedule with a first block of 200 M cu.ft. which differs only in that it gives somewhat lower costs to customers classed as industrial. Both schedules have a minimum of \$1.00 per month and are subject to prompt payment discount of five per cent.

Recognizing the limitations of these block rates, the company had for some time been considering the introduction of a series of promotional class sched-

ules to meet local conditions. Anyone who has done so, however, will realize the difficulty of making radical changes in a form of rate schedule with which customers and others have become familiar, and will understand why the matter was not pressed by the company until competition made rate revisions imperative.

Edmonton is the center of extensive, easily mined lignite (semi-bituminous) coal areas. There are five coal mines inside the city limits and several shallow "stripping" properties within short distances. Farmers along the Saskatchewan River secure their coal supply from the river banks, where it outcrops at a number of places. Coal prices delivered to premises in Edmonton in 1929 varied from \$5.50 a ton for domestic purposes down to \$1.75 for coal suitable for the larger industrial users. From 1930 on, however, competition of small "gopher hole" mines forced coal prices down as low as \$2.75 per ton for domestic use, and to \$1.00 per ton in larger quantities for industrial and commercial use. Farmers and others feeling the pinch of hard times took coal from the river banks, which they delivered in Edmonton for what price they could get.

Space Heating Load Essential

In considering the effect which this unregulated coal competition had on the company's revenue, it must be kept in mind that the space heating load is essential to the successful operation of a natural gas company in Edmonton. In an average year 70% of the company's revenue is from space heating, this percentage running as high as 90% from November to March. It will be realized therefore that coal competition from 1930 on, while not causing an appreciable loss in number of customers, did mean that a number

of domestic customers changed from gas to coal for space heating by central plant. Gas for cooking, water heating in summer, when the furnace was not in use, garage heating, etc., under the block rates was still cheaper and much more convenient than coal. These "Convenience Customers" did not carry their fair share of the cost of service if any reasonable allowance were made for "customer" and "demand" charges.

Industrial Block Schedules

Block schedules of the type indicated are of course still more unsatisfactory for industrial purposes, both from the company's and the customer's points of view. They do not take into account the customer's load factor, the demand on the company's system, or the time of such demand. They are therefore not equitable as between customers using the same M cu.ft. under the different load conditions, and handicap the company, in securing off-peak loads. Summer off-peak loads are, of course, particularly attractive where there is considerable space heating and severe winters. As a typical example,—a department store and a brewery using the same M cu.ft. per year would, under the block rates, pay about the same for gas service. The department store, however, places on the company's system during winter peak load a demand five times as great as that of the brewery. The brewery peak demand incidentally comes during off-peak summer months.

In Alberta all public utility companies are subject to regulation by the Board of Public Utility Commissioners under the Public Utility Act of 1915, as consolidated in 1923, and since amended. It was therefore advisable to secure the consent of the City Council to any proposed changes of rates, and it was then necessary to get the approval of the Board.

The company would of course have preferred to cancel the old block rates

and substitute for them a set of promotional schedules which would recognize the principle of customer and demand charges, and which would as nearly as possible reflect the actual cost of natural gas service. This, however, would have caused serious political difficulties as a considerable percentage of domestic customers using gas in small quantities for convenience purposes would have had their annual gas cost increased. It was decided therefore to make the new rates *optional*, believing that the rates in themselves would induce the small domestic users to substitute gas for other fuels for space heating, and thus accomplish the company's purpose without political reaction.

Block schedules "with small initial blocks covering Concealed Service Charge" were first considered for domestic purposes, as it was felt that this type more nearly approached the old schedules in form, and would be more easily explained to customers and city authorities. After considerable work, however, it was found that this type had not the necessary flexibility. The Concealed Service Charge did not increase with increased demand, which was a function of the size of the house where gas was used for space heating in severe winter months. This type of schedule could not therefore be fair to all domestic customers, and, after considering a number of methods of arriving at a measure of the demand, such as rated burner capacity, capacity by test, and installed radiation, it was decided to base the demand charge on cubic feet of heated space.

The cubic feet of heated space method of measuring demand is open to the obvious objection that it does not take into account such factors affecting the demand, as type of building construction, insulation of walls, window space, etc., but careful trial and error tests proved it more accurate than others considered.

Domestic Rate (Schedule C)

The domestic rate finally decided on was in effect a three part rate made up of a customer charge of 75 cents per month, a demand charge of 15 cents per month per M cu.ft. of heated space, and a straight line commodity

charge of 25 cents per M cu.ft. This schedule, which was the first presented to the city for approval, met with no serious opposition as its advantages were readily appreciated by the city engineer, who was familiar with the principles of modern rate making. The Board of Public Utility Commissioners also gave ready consent, they too being familiar with this type of schedule which is in use by all private and government electric utilities in Western Canada.

It is not necessary to stress the advantages of this type of schedule. There is a degree of flexibility in that the company may not include in cubic contents, rooms which are not heated and used during the winter. It also recognizes the right of a small householder to the same commodity charge as a large householder, both having paid the same customer charge and their fair demand charge. Under the old block rates a domestic customer's bill for December was usually ten times greater than for July and August, and the better monthly distribution of annual gas costs will, we believe, be a distinct advantage to the smaller householder as well as to the company.

Special High Load Factor Rate (Schedule D)

This rate is available to either industrial or commercial customers who meet the "availability" conditions. Due however to the high winter space heating peaks and the load factor condition of this rate, it is in practice a high load factor industrial rate only. It also is in effect a three part rate, the customer charge being sufficiently high to cover extra supervision of each installation by the company's combustion engineer, and additional costs due to recording meters. The demand charge is based on "twelve-hour demand" because of the storage capacity of the company's transmission and distribution system, which demand may be estimated by the company or measured by recording meter at the customer's option. The advantage of this optional method in arriving at demand in securing new business, and in giving a degree of flexibility to the schedule is obvious. The commodity charge consists of two blocks to meet the condi-

tion of reduced coal prices for larger quantities.

Commercial and Industrial Rates (Schedule E)

This two part rate violates several principles of scientific rate making but was adopted to meet a local condition which it was necessary to correct quickly. It is intended (1) to induce such customers as office buildings and apartment houses, which already use gas for such convenience purposes as hot water heating, to also use gas for space heating, and (2) to give some rate consideration to restaurants and similar customers using considerable gas summer and winter in rented premises, where space heating is supplied by the landlord. While this latter class of customer may not have a good daily load factor their steady annual load is attractive where the company's winter space heating peaks are excessive.

The difficulty of securing reasonably accurate and simple methods of measuring demand, or relative demands, is appreciated by any one who has endeavored to evolve scientific gas rates. In this case we were handicapped by the lack of demand data, which it seemed unnecessary to keep under the old block rates. Manufacturers' rating of burners was in most cases not available and burner capacity tests proved unsatisfactory. Heated space, while satisfactory for residences, proved entirely unsuitable for this rate, due to the widely different temperature at which commercial buildings are kept during winter months, warehouses and portions of stores for instance being kept at 40° or less, while apartment houses are kept at from 60° to 70°.

The two part rate with straight line commodity charge was finally evolved by trial and error applied to a number of typical customers already being served by the company, and to others, then using coal for space heating, whose business it was hoped to secure. This schedule is essentially three separate rates for different annual consumption blocks. The service charge in this schedule is obviously not a function of the demand and different commodity charges were necessary. If time and necessary data had been available we could no doubt have evolved separate

and more logical rate schedules for such classes as apartment houses, warehouses, stores, etc., where heating conditions are similar.

General

These three rate schedules do attempt to accurately reflect customer, demand and commodity costs. They were evolved to meet local conditions and particularly space heating competition, where such load is the principle source of the company's revenue, and where as a consequence winter peaks are excessive. The company under these rates has in two months gotten back over four hundred residence furnace loads, which it lost since 1930. It has also secured considerable high load factor commercial and industrial loads, which it could not secure under the old block rates.

Not many customers remember what they paid for gas during the year, but practically all remember with some resentment their high bills during one or two extremely cold winter months, and it is then that they are open to consider competitive fuels. The more even distribution of monthly bills, which under these rate schedules are decreased in winter and increased in summer months, will we believe, mean better customer relations and an increased use of gas per customer. The advantage to the company of the better distribution of its annual revenue is obvious.

Experience with our affiliated electric companies leaves no delusions as to the necessity of continually explaining to and educating the public as to the reason for a service or fixed charge for which they think they "get nothing." This, however, is merely an operating problem which can be met by an educated and tactful staff in contact with the public.

SCHEDULE "C"

DOMESTIC RATE (OPTIONAL COMBINATION)

Availability

This schedule is available to residence or domestic customers. It is not available for commercial or industrial use or to apartment houses or blocks for resale to tenants thereof. Premises occupied and used by the customer as both residence and commercial establishments shall be classified as commercial.

NET MONTHLY RATE

Fixed Charge

Seventy-five (75) cents plus fifteen (15) cents per thousand cubic feet of Heated Space. Maximum—Five Dollars (\$5.00).

Commodity Charge

Twenty-five (25) cents per M cu.ft.

DETERMINATION OF HEATED SPACE

Heated space in cubic feet shall be arrived at from the inside measurement of the building including partitions and floors. Basements and attics or portions thereof will only be included when occupied as living quarters.

When garages are served through the house meter eighty (80) per cent of garage cubic contents arrived at as above will be added.

The total heated space shall be taken to the nearest multiple of one thousand (1000) cubic feet.

SPECIAL CONDITIONS

(1) This schedule is available only on annual contract, which shall continue from year to year thereafter until either party shall give to the other party at least thirty (30) days prior to the expiration of any such year, a written notice of desire to terminate same, whereupon at the expiration of such year it shall cease and determine.

(2) When accounts are not paid on or before the due date the consumption charge shall be increased by two (2) cents per M cu.ft. and the gross rate so arrived at shall apply.

SCHEDULE "D"

SPECIAL HIGH LOAD FACTOR RATE (OPTIONAL)

Availability

This schedule is available to customers only on annual contract, whose annual consumption of gas is not less than 6,000 M cu.ft., and whose total consumption during the six meter-reading periods ending in May to October inclusive is not less than 40% of their total consumption during the twelve meter-reading periods ending in January to December inclusive.

RATES

Fixed Charge

Twenty Dollars (\$20.00) per month plus One Dollar (\$1.00) per month per 1000 cubic feet of 12 hour Demand.

Commodity Charge

First 1000 M cu.ft. per month, 15 cents per M cu.ft.
All over 1000 M cu.ft. per month, 11 cents per M cu.ft.

DETERMINATION OF DEMAND

(a) The demand shall be the greatest amount of gas in cubic feet delivered in any twelve (12) consecutive hours during the current billing period or the preceding eleven (11) billing periods.

(b) If the customer requests the company to do so in writing, the company will install a recording meter to measure the twelve hour demand, and the demand established for the current period or for the previous eleven billing periods under either "A" or "B" method of determination of demand shall apply. When a recording meter has been installed, eleven (11) months, demands as determined by "B" method only shall apply for not less than one year.

(c) The company may, however, with the consent of the customer estimate the demand, taking into consideration such factors as the effect of the customer's demands for gas upon the company's peak load.

SPECIAL CONDITIONS

Contracts under this rate shall be renewed from year to year unless either party gives to the other thirty (30) days' notice in writing of termination prior to the expiration of any contract year.

SCHEDULE "E"

COMMERCIAL AND INDUSTRIAL RATE (OPTIONAL)

Availability

This schedule is available to (1) all commercial and industrial consumers whose major fuel for space heating purposes is natural gas, and also to (2) all other commercial and industrial consumers whose annual consumption is not less than 3000 M cu.ft. and whose consumption from May to October inclusive is not less than 40% of their total annual consumption.

NET RATES

(A) Consumers whose annual consumption is not more than 1,500 M cu.ft. per year:

Fixed Charge

Five (\$5.00) Dollars per month.

Commodity Charge

Twenty-five (25c) cents per M cu.ft.

(B) Consumers whose annual consumption is greater than 1,500 M cu.ft. but not more than 10,000 M cu.ft.

Fixed Charge

Ten (\$10.00) Dollars per month.

Commodity Charge

Twenty-one (21c) cents per M cu.ft.

(C) Consumers whose annual consumption is in excess of 10,000 M cu.ft.

Fixed Charge

Thirty-five (\$35.00) Dollars per month.

Commodity Charge

Eighteen (18c) cents per M cu.ft.

SPECIAL CONDITIONS

(1) This schedule is available only on annual contract, which shall continue from year to year thereafter until either party shall give to the other party at least thirty (30) days prior to the expiration of any such year, a written notice of desire to terminate same, whereupon at the expiration of such year it shall cease and determine.

tion of such year it shall cease and determine.

(2) When consumers' accounts are not paid on or before the due date the consumption charge shall be increased by two (2c) cents per M cu.ft. and the gross rate so arrived at shall apply.

(3) When a consumer has been billed under one sub-section of net rates and at the end of that year it is found that he should have been billed under another sub-section, his account shall be adjusted and the necessary refund made by the company.

Aids Employees To Enroll in Natural Gas Course

J. D. CREVELING of Henry L. Doherty and Company, New York, has announced a plan whereby employees of natural gas properties of the Cities Service Company who enroll in and successfully complete the Home Study Course on Natural Gas offered by the University of Kansas and the American Gas Association may have one half of the cost of the course reimbursed by their companies. Mr. Creveling is one of the original promoters of the course and is a member of the Advisory Committee appointed by the Natural Gas Department of the Association to advise on and review the contents of the course.

In a letter addressed to the officials of natural gas properties in the Doherty organization, Mr. Creveling recently recommended that the companies advance whatever amount is necessary, up to \$60.00 a student, to pay for the course, deducting one twelfth of the amount from the employee's monthly pay check until the amount advanced is returned to the company. Should an employee leave the company before the amount advanced has been refunded, the balance is to be deducted from his last pay check. Each employee who completes the course and receives a certificate will be reimbursed to the extent of one half of the cost, or \$30.00.

The course is being offered by the University of Kansas at the request of the Natural Gas Department of the American Gas Association. It has been prepared and is under the supervision of Professor C. M. Young, professor of mining engineering at the University of Kansas. Kansas University was selected to offer the course because of the activities of the university's mining engineering department, the high personal qualifications of Professor Young, the department head, and the university's well equipped extension department.

Professor Young more than a year ago agreed to prepare and conduct the course under the extension division of the university. It was then that the Natural Gas Department of the A. G. A. appointed an advisory committee. Some sections of highly specialized phases were submitted to specialists on those subjects and every effort was made to muster the best brains available in the preparation of the course. The advisory committee, made up of leaders in the natural gas industry, was appointed by the Natural Gas Department to make suggestions, to check statements and policies

and to have general oversight of the course. The committee is an index of the quality of the course. Each of its four members is nationally known as a successful executive in the natural gas industry. The men on the committee are, in addition to Mr. Creveling, F. L. Chase, vice-president, Lone Star Gas Company, Dallas, Texas; Dr. J. B. Garner, Hope Natural Gas Company, Pittsburgh, Pa., and A. B. Macbeth, president of the Southern California Gas Company, Los Angeles, Calif.

S. J. Ratcliffe Promoted



S. J. Ratcliffe

SIDNEY J. RATCLIFFE has been appointed treasurer of The Peoples Natural Gas Company and The Columbia Natural Gas Company, it was stated by J. B. Tonkin, president.

Charles H. Rupp, retiring treasurer, is completing 32 years of service. Mr. Ratcliffe has been with the company 22 years.

For the past two years he has been assistant treasurer after a number of years as chief clerk.

Oscar H. Graf is first assistant treasurer. H. Donald Borger has been made an assistant treasurer, a promotion from chief clerk.

Eastern Natural Gas Sales Conference

THE 1935 Eastern Natural Gas Regional Sales Conference, sponsored by the Commercial Section of The American Gas Association, will take place February 28 and March 1-2, at the William Penn Hotel, Pittsburgh, Pa.

W. L. Hutcheson, chairman of the Eastern Natural Gas Regional Sales Council is in charge of the program.

Among the subjects to be discussed at this conference are the following: The Outlook for the Gas Industry, Gas Refrigeration Plans for 1935, Gas Refrigeration from the Natural Gas Industry's Viewpoint, The Growing Market for Circulating Heaters, Methods of Gaining and Retaining House Heating Customers,

How and Where to Sell Unit Heaters, The Application of Prepared Furnace Atmospheres, Gas Air Conditioning, Gas Flood Lighting, and The Status of Commercial Load in Natural Gas.

Speakers who have been invited to appear on the program include: Floyd Parsons, Robbins Publishing Company, New York; George L. Roach, Servel, Inc., New York; C. E. Bennett, Binghamton Gas Works, Binghamton, N. Y.; Lucian Kahn, Estate Stove Company, Hamilton, Ohio; V. L. Black, Equitable Gas Company, Pittsburgh, Pa.; Smithers Merrill, The Peoples Gas Light and Coke Company, Chicago; H. M. Heyn, Surface Combustion Corporation, Toledo, Ohio; Harvey Holtz, The Peoples Natural Gas Company, Pittsburgh, Pa.; M. J. Grandbois, General Gas Light Company, Kalamazoo, Mich.; and R. E. Melaney, Equitable Gas Company, Pittsburgh, Pa.

The program will conclude with a Home Service Conference of a half day on Saturday morning, March 2—a new feature. The program at this half-day session will be similar to that given for the Mid-West Gas Sales Conference, described elsewhere in this issue.

"Change we have with us always. It is but common sense to try to meet that change with the help of the combined ideas of many men. With an acceleration in the rapidity of change—in our industry as well as in life in general—we can help and are helping each other more and more."—F. M. Goodwin.

The New Frontispiece Illustrations

WITH this issue we present the first of a new series of frontispiece illustrations designed to show by contrast the higher standards of living assured by modern gas appliances. We undertake this innovation with two thoughts in mind: First, we believe our readers will be interested in good photographic illustrations which portray the latest models of gas appliances in attractive settings. Second, we believe that many advertising men and sales managers will be glad to know that photographs of this nature, as well as others made on order, may be secured from firms which specialize in this business.

The illustrations reproduced in this issue are by courtesy of Miss Anne Shriber, a pioneer in the field of high-class pictorial material for use in magazine, direct-mail and other forms of advertising. Miss Shriber has a collection of photographs which she will send without charge for inspection by those who are interested, and she will undertake, on her own responsibility, the making of any special picture suggested by a client. Those who wish to take advantage of this service should correspond directly with Miss Anne Shriber, 11 West 42nd Street, New York City.

Affiliated Association Activities

New England Gas Association

THE annual business conference of the New England Gas Association will be held at the Hotel Statler, Boston, on Thursday and Friday, February 14 and 15.

F. M. Goodwin, vice-president of the Boston Consolidated Gas Company and president of the Association, is chairman of the Program Committee of ten members.

There will be a total of twenty-one papers presented in the four sessions on the morning and the afternoon of each day. More than one-third of the speakers will be from outside of New England. Among those on the program will be President Young and Managing Director Forward of the American Gas Association.

The Program Committee plans to present maximum variety by having more and shorter papers at the conference. The aim is to have at least two or three papers on the four sessions which will be of direct interest to every gas company representative, regardless of his particular individual activity.

The directors' dinner will be held Wednesday evening, February 13. There will be a luncheon of the home service group on Friday noon at which there will be several speakers on timely developments in this field.

Southern Convention and Sales Conference

THE Southern Gas Association Convention and the Southwestern Regional Gas Sales Conference, which are being held jointly, will take place February 20-23 at the Adolphus Hotel in Dallas, Texas. This year marks the first official meeting of the affiliated group from the Southern Gas Association and the Southwestern Regional Sales Conference group.

In addition to the regular sales conference, there will be a general sessions meeting. A round-table discussion will also be held for those interested in industrial gas matters on Wednesday afternoon, February 20, at 3:00 p.m.

The program will conclude with a Home Service Conference of a half day on Saturday morning, February 23—a new feature. The program at this half-day session will be similar to that given for the Mid-West Gas Sales Conference, described elsewhere in this issue.

Following is the tentative program for the joint meeting:

GENERAL SESSION MEETING

Wednesday Morning, February 20

1. "The Gas Appliance Institute."
John A. Fry—Detroit-Michigan Stove Co., Detroit, Mich.

2. "Systematic Servicing of All Gas Appliances."

(Speaker to be announced.)

Thursday Morning, February 21

- "T.V.A. Policies As They Affect the Gas Industry."

1. (Speaker to be announced.)

2. (Speaker to be announced.)

3. W. E. Leverette, commercial manager, Nashville Gas and Heating Company.

Friday Morning, February 22

- "What Is Offered to the Southern Gas Industry at Present in Air Conditioning."

Lyle C. Harvey, vice-president, Bryant Heater Company.

SALES CONFERENCE

Wednesday Afternoon, February 20

W. A. Hudson, chairman, presiding.

1. "Suggestions for Selling Gas Flood Lighting."

L. F. Ryall, vice-president, General Gas Light Company.

2. "Developing Commercial Baking Business."

George Kollock, Atlanta Gas Light Company.

3. "Developing Heavy Duty Commercial Cooking Business."

Russel Cox, Detroit-Michigan Stove Co., Chicago, Ill.

4. "Developing Commercial Cooking Through Across-the-Counter Merchandise."

A. E. Creviston, Standard Gas Equipment Corporation.

5. "Rental Purchase Plan of Selling Automatic Water Heaters."

(Speaker to be announced.)

Discussion—C. L. Trevitt, Community Natural Gas Company, Dallas, Texas.

Thursday Afternoon, February 21

C. K. Patton, presiding

1. "Advertising That Sells."

a. W. C. Grant, Lone Star Gas Company.

b. Legare Davis, Atlanta Gas Light Company.

c. (Speaker to be announced.)

d. Fitzgerald Advertising Agency, New Orleans, La.

e. C. B. Hauck Advertising Agency, Roanoke, Va.

2. "Gas Engines for Power."

W. G. Briggie, Jr., Lone Star Gas Company, Dallas, Texas.

Discussion—(Appointment to be made by L. B. Denning, Lone Star Gas Company, Dallas, Texas.)

3. "New and Reconnect Customer Campaign."

Sam Watts, Louisiana Power & Light Company, Algiers, La.

Discussion—Parker Tucker, Arkansas Power & Light Co., Pine Bluff, Arkansas.

Friday Afternoon, February 22

W. A. Hudson, presiding, W. E. Parrott and C. B. Wilson, assisting

Convention Calendar

FEBRUARY

- 14-15 New England Gas Association
Hotel Statler, Boston, Mass.
- 14-15 A. G. A. Mid-West Regional Gas Sales Conference
Sherman Hotel, Chicago, Ill.
- 16 A. G. A. Regional Home Service Conference
- 20-22 A. G. A. Southwestern Sales Conference and Southern Gas Association Convention
Dallas, Texas
- 23 A. G. A. Regional Home Service Conference
- Feb. 28-Mar. 1 A. G. A. Eastern Natural Gas Regional Sales Conference
William Penn Hotel, Pittsburgh, Pa.

MARCH

- 2 A. G. A. Regional Home Service Conference
- 12-13 Oklahoma Utilities Association
Oklahoma City, Okla.
- 28 New Jersey Gas Association
Walt-Whitman Hotel, Camden, N. J.

APRIL

- 15-17 Mid-West Gas Association
Hotel Fontenelle, Omaha, Nebr.

- 22-26 American Chemical Society
Hotel Pennsylvania, New York, N. Y.
- 25-26 Missouri Association of Public Utilities
President Hotel, Kansas City, Mo.

MAY

- 2-4 A. G. A. Distribution Conference
Cleveland Hotel, Cleveland, Ohio
- 6-9 Natural Gas Department, American Gas Assn.
Hotel Peabody, Memphis, Tenn.
- 7-9 Pennsylvania Gas Association
Lodge at Skytop Club, Skytop, Pa.
- Wk. 13 National Fire Protection Association
Biltmore Hotel, Atlanta, Ga.
- 13-14 A. G. A. Joint Committee Conference of the Production and Chemical Committees
Hotel New Yorker, New York, N. Y.

JUNE

- Wk. 3 Edison Electric Institute
Mayflower Hotel, Washington, D. C.
- 10-11 Canadian Gas Association
Quebec, Canada
- 24-29 American Society for Testing Materials
Book-Cadillac Hotel, Detroit, Mich.

OCTOBER

- 14-18 American Gas Association
Atlantic City, N. J.

1. "Gas Rate Design with Respect to Heat-Hour Comparison with Electric Rates."
Donald Henry, Stone & Webster Company.
Discussion—C. B. Gamble, Birmingham Gas Company.
2. "Gas Refrigeration."
(Speaker to be announced.)
Discussion—C. K. Patton, Lone Star Gas Company.
3. "How to Sell Vented House-Heating."
B. E. Fisher, Payne Furnace Company.
4. "Selling Radiant Type Heaters."
(Speaker to be announced.)
Discussion—W. F. Eve, Atlanta Gas Light Company.

TECHNICAL SECTION

Wednesday, February 20, 2 P.M.

"Humidifying and Oil Fogging Natural Gas"

E. C. Kollock, Chief Engineer, Atlanta Gas Light Company, Atlanta, Ga.

"Leakage Survey and Estimated Repair Program, as Relating to Cast Iron Pipe"

Carroll Diller, Distribution Engineer, Arkansas-Louisiana Gas Company, Arkansas, La.

"Cathodic Protection of Pipe Lines from Soil Corrosion"

R. J. Kuhn, New Orleans Public Service Inc., New Orleans, La.

New Jersey Gas Association

THE twenty-fourth annual meeting of the New Jersey Gas Association will be held at Camden, New Jersey, at the Walt Whitman Hotel, on Thursday, March 28, 1935, at ten o'clock in the morning. Speakers of national and local prominence will appear on the one-day program to discuss events and items of general interest. Election of officers for the coming year will be included in the brief business session.

It is expected that about 500 persons will attend. The state gas companies and many of the manufacturing companies will be well represented.

Oklahoma Utilities Association

THE seventeenth annual convention of the Oklahoma Utilities Association will be held at the Hotel Biltmore in Oklahoma City, Tuesday and Wednesday, March 12 and 13.

Manager E. F. McKay announced that the program will be constructed on lines similar to those of the past three years in which general sessions are held with speakers of prominence representing all branches of the utility industry included in the Association membership. These are electric light and power, gas, telephone, electric railway and manufacturers and suppliers. There will be special sessions for the telephone division devoted to problems pertaining to that branch of the utility industry.

A convention dinner will be held on the night of March 12. The annual election of officers will take place March 13.

H. B. Cobban of Miami, Oklahoma, general manager of the Northwest Oklahoma Railroad Company, is president of the Oklahoma Utilities Association.

There will be no manufacturers' exhibits in connection with the Oklahoma convention this year.

Study of Gas Field Equipment

THE U. S. Bureau of Mines, Department of Interior, assigned a petroleum engineer to study the performance of new equipment and the efficacy of improved drilling and production methods in the Oklahoma City oil and gas field during its earlier period of development. The results of that study, continuing throughout the intensive drilling campaign, have just been published as Technical Paper 561, "Mechanical Equipment Used in the Drilling and Production of Oil and Gas Wells in the Oklahoma City Field," by Gustav Wade. Copies are available for distribution only by the Superintendent of Documents, Washington, D. C., price 10 cents.

The Oklahoma City field was the first large field in which all of the oil wells were over one mile deep. The average

depth was 6,500 feet below the surface and initial formation pressures were about 2,600 pounds per square inch, which is much above the usual pressure in other Oklahoma fields. Accordingly, the development of this field called for mechanical ingenuity and the evolution of new devices in order to drill the wells quickly, at reasonable cost, and with due regard for safety of life and property.

The first part of Technical Paper 561 deals with drilling equipment and practices; the second part is devoted to a description of the surface equipment used at the wells.

House Heating Manual

FOUR sets of tables, showing the coefficient of transmission for various building insulants, have been prepared by the Industrial and House Heating Committee of the New Jersey Gas Association. The tables have been printed on sheets that can be easily inserted in the association's House Heating manual. The four sheets have been distributed without charge to holders of the manual.

Additional copies of the manual, which has enjoyed international distribution, are available at a special price of \$1.50. Address the Secretary, 80 Park Place, Newark, N. J.

: Additions to the Family :

DECEMBER 15, 1934—JANUARY 15, 1935

MANUFACTURER COMPANIES

Renown Stove Company, Owosso, Mich.....M. H. Pryor
Tennessee Enamel Manufacturing Company, Nashville, Tenn.....R. G. Ceeton

Delegates

INDIVIDUAL MEMBERS

Anuskiewicz, Michael, Jr.....The Brooklyn Union Gas Company, Brooklyn, N. Y.
Brooks, Alex M.....The Chaplin-Fulton Mfg. Company, Pittsburgh, Pa.
Deely, James J.....The Brooklyn Union Gas Company, Brooklyn, N. Y.
German, Wilbur W.....Montana Power Company, Butte, Montana
Herrmann, Carl S.....New England Power Association, Boston, Mass.
Hoots, Paul F.....New Orleans Public Service Inc., New Orleans, La.
Jolly, E. C.....San Antonio Public Service Company, San Antonio, Texas
Johnston, Andrew William, Jr.....The Harrisburg Gas Company, Harrisburg, Pa.
Kennedy, James A.....Northern Indiana Public Service Co., Hammond, Ind.
Kniskern, W. J.....New York Power & Light Corporation, Schenectady, N. Y.
McDonough, Walter A.....Northern Indiana Public Service Company, Hammond, Ind.
Nelson, Oscar.....United Carbon Company, Charleston, W. Va.
Nevins, Margaret M.....The Syracuse Lighting Company, Inc., Syracuse, N. Y.
Perkins, Walter F.....The Bartlett Hayward Company, Baltimore, Md.
Philipp, Herman E.....Central Hudson Gas & Electric Corp., Newburg, N. Y.
Pierce, Richard E.....Northampton Gas Light Co., Northampton, Mass.
Raffield, James E.....Sumter Gas & Power Company, Sumter, S. C.
Ratcliffe, Sidney J.....The Peoples Natural Gas Company, Pittsburgh, Pa.
Rider, J. S.....Anderson Gas & Utilities Company, Anderson, S. C.
Shannahan, W. Dean.....Northern Indiana Public Service Co., Goshen, Ind.
Thorn, Thomas H.....The Chaplin-Fulton Mfg. Company, Pittsburgh, Pa.
Wallace, Henry C.....Commonwealth Gas System, Inc., New York, N. Y.
Weber, Wilfred H.....The Brooklyn Union Gas Company, Brooklyn, N. Y.

ACCOUNTING SECTION

A. S. CORSON, Chairman

H. W. HARTMAN, Secretary

F. L. GRIFFITH, Vice-Chairman

Accounting Section Outlines Program at Organization Meeting



A. S. Corson

A PROGRAM of activities for 1935 was adopted by the A. G. A. Accounting Section at meetings of the Advisory and Managing Committees held at Association Headquarters December 12, 1934.

Before proceeding to a detailed consideration of this program, Chairman

A. S. Corson announced that H. M. Brundage, senior vice-president of the Consolidated Gas Company of New York, having completed forty years of service with that organization, had decided to retire from active business on December 11, and also to resign from all Association activities. The highest tributes were paid by the members present to Mr. Brundage who had always been affectionately known as the father of the Accounting Section because he had so ably fostered its development from its inception in 1918. It was resolved to take suitable steps to express the appreciation and affectionate regard of his associates.

After considerable discussion, the following program of committee activities was approved:

Accounting Machines Committee

The past work of this committee had involved reporting on routines and systems of interest to both the Customer Accounting, and the General Accounting Commit-

tees, consequently it was decided to call for greater coordination of the programs of these committees. In the first instance it was suggested that the Accounting Machines Committee confine its report as far as possible to actual developments in accounting machines, and further that a representative of this committee be present at the organization meetings of both the Customer Accounting and the General Accounting Committees so that as far as necessary joint action be taken on matters of common interest.

It was further decided not to hold any luncheon conference of the Accounting Machines Committee at the convention this year, as so many of the members interested in machine developments also desired to be present at the luncheon conferences of the Customer Accounting and General Accounting Committees.

Subject to the above recommendations, the following activities for this committee were approved for further consideration at its organization meeting:

1. Preparation of Fundamental Charts—

This is to be continued so as to record new developments in machine equipment.

2. The application of machines to labor, transportation and general accounting.

3. The use of machines in cash receiving, including the advantages and disadvantages of different bill receipting equipment.

The preparation of the "Wrinkles" report sponsored by this committee was left to the decision of the committee at its organization meeting; also suggestions as to study

of accounting machine developments, and development of bookkeeping machines as related to customer accounting were recommended to be included for consideration under Item 1 above.

Action on Item 2 will depend on the program adopted by the General Accounting Committee.

It was further recommended that the committee take under consideration in its general program any further developments in distribution strip accounting.

Customer Accounting Committee

L. A. Mayo, chairman of the Customer Accounting Committee, announced that its program would include a follow-up on the activity of last year's committee relating to the control of customer accounting procedure. He enlarged upon the importance of insuring so far as possible that the routines, policies, etc., of the management be thoroughly understood and followed up throughout the organization. He also felt that the time was ripe for a comparison of various methods of customer accounting and particularly to determine the trend of such methods.

A number of other activities were tentatively discussed and under the subject of credits and collections, it was suggested that the committee might very well take up the question of the status of accounts receivable which would include a study of plans for determining uncollectibles. As another sub-division of this particular subject, the question of procedure in rendering of final bills was suggested.

W. F. R. Munnich, chairman of the General Accounting Committee, indicated



Meeting of the Managing Committee of the Accounting Section, held in New York, December 12, 1934. Pictured above are: A. S. Corson, J. R. Abercrombie, F. L. Blackburn, F. J. Bischoff, J. L. Conover, H. E. Cliff, Sidney Curren, H. L. Dalbeck, W. A. Doering, H. T. East, H. A. Ehrmann, C. J. Fue, H. L. Gruehn, T. S. Lever, J. W. Mackie, L. A. Mayo, W. F. R. Munnich, O. F. Potter, M. F. Reeder, J. M. Roberts, A. L. Tossell, E. J. Tucker, Geo. B. Webber, and H. W. Hartman

that its organization plans should, in his opinion, include an intensive study of work order systems and their relation to work in progress and unfinished construction. Whether this is to be a statement of the fundamentals relating to the subject or an exposition of such fundamentals through description of a definite system at present in effect will be determined later.

Mr. Munnich also indicated that the subject of budgets, both general and departmental, was susceptible of further study. Among other things, the committee will probably continue the comparison of accounting practices started last year, applying the comparison to general and miscellaneous accounts, commercial accounts, and production accounts.

The subject of control of general accounting procedures, internal audits, etc., was also discussed for consideration by the committee at its organization meeting.

Office Management Committee

George B. Webber, chairman of the Office Management Committee, stated that, as last year, the committee had a great number of suggestions from which to select its program. He felt that of the many suggestions one of the most important was the recommendation of a study in connection with form letter preparation and the use thereof.

Mr. Webber further stated the need for study of specific plans for transferring meter records continuously instead of at one time. It was hoped to indicate in this study the possibilities of ironing out the peaks and valleys that at present exist in the work of transferring such records.

Office layout, having in mind facilities for scheduling work; lighting, ventilation and sound proofing were also among the activities suggested. Employment of married women and job specifications were included in the suggestions relating to employment that will be given special consideration by the committee. A Coordination Committee dealing with the inter-relations of different departments was strongly suggested and will be given consideration.

Customer Relations Committee

H. T. East, chairman of the Customer Relations Committee, stated that he also had been in receipt of a great many suggestions, some of which would make the organization problem largely one of selection.

He mentioned analysis of forms and form design as it affects customer relations as one of the suggestions strongly urged. Related to this subject was one on the preparation of a manual of form letters such as are used in many companies for collection follow-up, customers' service information, etc. Much improvement in these forms and form letters has occurred lately and, it was suggested, might very well be brought to the attention of the membership.

It was also indicated by the past chairman that further work might be continued on the best method to inform employees

regarding the policies of the company, how these policies affect the customers and why it is the duty of employees to interpret these policies properly to the public. One suggestion had been received that some prominent woman be selected to present a paper on "The Housewife's Relation to Her Local Gas Company." Another suggestion had been that there be a discussion of the automatic telephone system in use by The Philadelphia Gas Works Company and the part it plays in customer relations. It had been again suggested that a further study be made in regard to the information on customers' bills.

Editorial Committee

J. M. Roberts reported that Frank Griffith of The Peoples Gas Light & Coke Company, chairman of the Editorial Committee, contemplated a program for securing articles for the A. G. A. MONTHLY that varied only slightly from the procedure that proved so successful last year. One variation discussed would be to request that all committees submit their articles as early in the year as possible without reference to any schedule of publication with the thought that this would reduce any peak load in the editorial work of the committee and permit of greater and more timely selection of the articles for various issues.

It was brought out that there would be available an outline of instructions for preparing articles, prepared by H. E. Cliff, of the Public Service Electric and Gas Company, that would be of great practical usefulness to authors and would probably eliminate much of the editorial work of the committee. With some slight corrections, these specific instructions for authors will be made available to the various committees shortly.

Compendium Committee

C. J. Fue reported that this year the Compendium Committee would make a further study of the report prepared last year with a view to suggesting a skeleton program for the Section for the next five years. He also offered to all committee chairmen the cooperation of the Compendium Committee whenever it was required in the preparation of their plans for the year. Each committee chairman was advised in framing his present plans to carefully review that portion of the Compendium Committee report relating to his own work.

Luncheon Conferences Committee

During the discussion of the activities proposed for all of the Accounting Section committees, certain of the topics suggested were definitely assigned for consideration by the Luncheon Conferences Committee as topics for discussion at the luncheon conferences. H. A. Ehrmann, chairman of the committee, stated that it was too early to report definitely on plans aside from the decision to eliminate the luncheon conference of the Accounting Machines Committee.

As it was manifest that the various committees would probably be unable to include all of the activities suggested in their program, Mr. Ehrmann requested that at their organization meetings they give further consideration to topics which could be presented at luncheon conferences.

Natural Gas Representatives Committee

It was reported that F. W. Peters of the Oklahoma Natural Gas Company, Tulsa, Okla., had accepted the chairmanship of the Natural Gas Representatives Committee. In view of the wide geographic spread of its members it was recommended that an Eastern Co-Chairman be appointed so that the eastern natural gas accountants would be able to meet locally in working out their joint program for the year.

Mr. Peters was requested to give consideration to a suggestion that the title of the committee be changed so as to give it a larger scope and permit of greater activity in the Section.

The following members were present at the organization meeting:

Managing Committee: A. S. Corson (Chairman), J. R. Abercrombie, F. L. Blackburn, F. J. Bischoff, H. L. Dalbeck, C. J. Fue, L. A. Mayo, J. M. Roberts, J. L. Conover, W. A. Doering, H. L. Gruhn, W. F. R. Munnich, A. L. Tossell, H. E. Cliff, H. T. East, T. S. Lever, O. F. Potter, E. J. Tucker, Sidney Curren, H. A. Ehrmann, J. W. Mackie, M. F. Reeder, Geo. B. Webber.

Advisory Committee: J. I. Blanchfield, J. L. Conover, H. C. Davidson, W. A. Doering, Edward Porter.

Committee Chairmen: Sidney Curren, W. F. R. Munnich, Geo. B. Webber, H. A. Ehrmann, J. M. Roberts (representing F. L. Griffith) T. S. Lever, L. A. Mayo, C. J. Fue, H. T. East.

Elected Vice-President

J. J. BEISIEGEL, formerly assistant to the president of the Central Union Gas Company, New York, was elected a vice-president of the company January 15, 1935.

Australian Association Proposed

At a recent conference in Sydney of representatives of Australian gas companies, it was resolved that a national gas association should be formed. To this end, an Acting Executive Committee was appointed to consider the matter. At the conclusion of the Centenary Gas Congress, a meeting of the committee was held at which two subcommittees were appointed; one on research and appliance testing and the other on publicity. These subcommittees are to report at the next meeting of the main committee.

Cost of Reproducing Letters

E. I. BJORK

The Peoples Gas Light & Coke Co.,
Chicago, Ill.

BECAUSE every gas company finds it necessary from time to time to prepare and distribute bulletins, notices, information letters, routines and the like for the information of its entire personnel, or of certain groups within the organization, it has been suggested that consideration be given to a study of the comparative costs of providing the necessary copies thereof. Undoubtedly, many institutions have already made such a study. In more instances, perhaps, executives familiar in a general way with the costs and methods of duplicating letters or reports have a preconceived idea as to the results which any such study will reveal, and function in accordance therewith.

Any attempt to present facts with respect to such comparative costs which would be applicable to all companies must inevitably fail. Salaries paid to employees of gas companies engaged in work of this character may differ in various localities. Overhead costs, such as rental for the space occupied by those so engaged, may vary widely. The costs of printing, blueprinting and other services of similar nature which the companies are not usually equipped to provide will certainly be different in one community as compared with another. Despite all this, it is believed that a study of such comparative costs as applicable to a particular company may be of general benefit in indicating a trend of such costs and in suggesting similar studies by other institutions.

Depreciation

There are many factors to be considered in making such a study which contribute to the cost but which are difficult to evaluate. For instance, certain types of duplicating equipment seemingly never wear out. At least, few companies probably have sufficient experience on the basis of which an accurate and infallible rate of depreciation can be determined. It must also be borne in mind that certain grades of paper are more adaptable for use with certain types of duplicating equipment than other paper.

For the purposes of this study, the results of which are shown on the attached chart, the rates of depreciation have been estimated upon the basis of the best information available. The comparative costs of typing, mimeographing, hectographing and multigraphing, services which the company itself is equipped to provide, include the cost of paper best suited to the particular method of duplication in question. This is an attempt to ascertain the most economical method of preparing copies, no consideration being

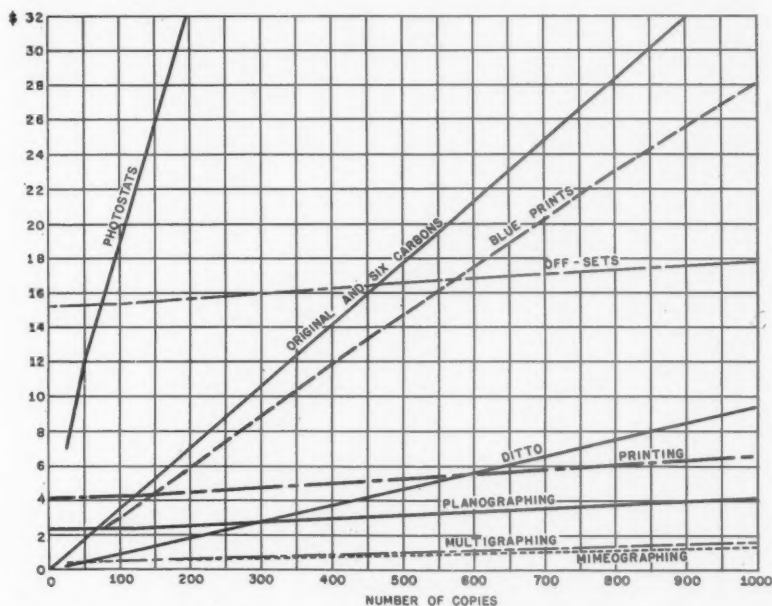
given to the fact that the better grades of paper required in certain operations will provide a more presentable finished product than the cheaper grades which can be used in other operations with satisfactory results.

All items which are known to enter into the cost of preparing copies by such methods, such as direct and indirect labor, maintenance and repairs of equipment, interest on investment, rent, light, power and supplies have been calculated or estimated on the basis of information ac-

ting forth a summary of the items and the costs of reproducing copies by mimeograph is appended hereto.

The costs of obtaining printed, blue-printed, photostatic, off-set, and planographed copies are the quotations of the trade. They are subject to change from time to time as the price of paper increases or decreases because of code requirements or owing to other reasons.

As those most familiar with the results to be obtained from the various types of equipment or service predicted, the study indicated that within the range of the number of copies contemplated, duplicating by means of mimeographing is the most economical, with multigraphing a close second. As the number of copies



Comparison of costs of various methods of reproducing a letter of 30 lines

culated over a reasonable period of experience. Space does not permit the inclusion of all of the details with respect to the compilation of costs. Suffice to say that the more or less fixed charges such as depreciation, interest, maintenance, rent and supplies were first computed on an annual basis. The amount thereof which was included in the cost of preparing a given number of copies was determined on the basis of the time required in the particular operation, the assumption being that the equipment is in constant use during the working hours. To this indirect charge was added the direct labor costs of typing, operating equipment, and proofreading, with an allowance for idle time and supervision, and the cost of paper, stencils and other items of direct expense. A tabulation set-

which can be prepared from one stencil is greatly in excess of the maximum number of copies covered by this study, it follows that no different results would be obtained if the study had embraced as many as 30,000 copies.

It should be borne in mind that this study has been confined to the comparative cost of duplicating a letter, notice, bulletin or similar straight copy work of 30 lines, which for practical purposes is one sheet of typing approximately 8½" by 11". While certain of the duplicating equipment is limited in its use to the preparation of copies of this or of legal sizes, other types can be used equally as well in the preparation of copies of larger sized reports. This is mentioned merely to emphasize that the usefulness of any specific equipment must

Contribution of the Office Management Committee.

not be calculated upon the basis of the comparative cost of producing a given type or size of copy matter.

COST OF REPRODUCING LETTERS BY MIMEOGRAPH

1. *Cost of Stencil* \$1.219
2. *Typing Stencil*—Time required 15 minutes
 - Labor at the rate of \$.538 per hour1345
 - Supervision—10% of labor... .0134
 - Depreciation of typewriter, Line-a-time, rubber keys,

desk, chair and other office equipment on basis of estimated life of each type of equipment; interest on investment on said equipment @ 6% per annum; rental of office space; light, maintenance and supplies. Cost for 15 minutes..... .0317

(The annual costs of the above items were first determined. This was reduced to an hourly basis by dividing by the working hours per year.)

Veteran Home Expert Observes Anniversary



MRS. ANNA J. PETERSON on December 11, 1934, observed her 12th anniversary as adviser to millions of housewives in Chicago and the middle west, on her Home Service radio program, sponsored by The Peoples Gas Light and Coke Company. It is the oldest program of its type on the air, and it has been heard without interruption since she inaugurated the series over the pioneer station KYW in 1922.

Thirty million mimeographed copies of Mrs. Peterson's recipes for menus and dishes have been distributed to housewives since 1922. She addresses her remarks to the microphone as she would to an individual housewife and shakes her finger at it to drive a point home.

3. *Proofreading Stencil*—Time required 5 minutes

Labor at the rate of \$.535 per hour0893
 Supervision—10%0089
 Depreciation of office equipment used by proofreaders; interest on investment therein @ 6% per annum; rental of office space; light..... .0008

Cost of completed stencil... \$4.005

4. *Producing 200 copies*—Time Required 4 minutes

Labor—Operator—@ \$3.87 per hour..... \$0.258
 Supervision—10%0026
 Depreciation of equipment; interest in investment therein; rental of office space; light, power, maintenance and supplies0597
 Paper @ \$.62 per M..... .1240

Cost of producing 200 copies \$2.121
 Total cost of reproducing 200 copies by mimeograph, including cost of completed stencil \$6.126

The cost of reproducing any number of letters can be computed at the rate of \$.2121 for each 200 copies and adding this computed figure to the cost of the stencil.

Gas Cooking Advertisements Available on Loan

ASSOCIATION Headquarters has collected a number of effective gas range and gas cooking advertisements in binders for loan to companies which are faced with a strong competitive situation. Included in the lot are the excellent series used by the Providence Gas Company, Detroit City Gas Company and Hartford Gas Company.

The purpose of this service is to make available to advertising men and sales managers samples of some of the best current newspaper advertising sponsored by gas companies to protect their domestic cooking load. It is hoped that a study of the advertisements will suggest new copy themes, illustration ideas and other points that will prove helpful in stressing the superiority of cooking by gas.

There is no charge for this service. The advertisements will be forwarded on loan for ten days, requests being filled in the order of their arrival at Headquarters. Kindly communicate with Charles W. Person, Director of Publicity and Advertising, Association Headquarters, New York, N. Y.

Gas and Gold

At Gympie, Australia, where there are many parties of men seeking gold in and around the town, a central battery, operated by a 10 H.P. gas engine, has been set up to crush quartz.

—*Australian News Letter.*

HOME SERVICE COMMITTEE

MARGARET NEVINS, Chairman

JESSIE McQUEEN, Secretary

Home Service Committee Outlines Work

THE organization meeting of the Home Service Committee of the Commercial Section was held in Syracuse, N. Y., on Friday, January 4, with an attendance of sixteen. Its chairman, Margaret Nevins of The Syracuse Lighting Company, Inc., presided, and presented a plan of work for discussion and assignment.

The membership of the committee for 1935 is as follows:

Chairman—Margaret Nevins, The Syracuse Lighting Company, Inc., Syracuse, N. Y.

Secretary—Jessie McQueen, American Gas Association, New York, N. Y.

Gas Company Representatives

Helen Bates, The Consumer's Gas Company, Toronto, Ontario, Canada.

Betty Boyle, Gas Service Company, Kansas City, Mo.

Laura Judd Bryant, Union Gas & Electric Co., Cincinnati, Ohio.

B. T. Franck, American Light & Traction Co., Chicago, Ill.

H. H. Koebel, Consumers Power Co., Jackson, Mich.

R. A. Malony, The Bridgeport Gas Light Co., Bridgeport, Conn.

Mrs. Arra S. Mixter, Hartford Gas Co., Hartford, Conn.

Nell Read, San Antonio Public Service Co., San Antonio, Texas.

Ruth Soule, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Ada Bessie Swann, Public Service Electric & Gas Co., Newark, N. J.

Elizabeth Sweeney, Empire Gas & Electric Co., Geneva, N. Y.

Beatrice Wagner, The Philadelphia Gas Works Co., Philadelphia, Pa.

Representatives of A. G. A. Laboratory, Affiliated Associations, Manufacturers, and Magazines

F. R. Wright, A. G. A. Laboratory, Cleveland, Ohio.

Mrs. Lyda Flanders, Worcester Gas Light Co., Worcester, Mass., representing New England Gas Association.

Gladys Price, Southern California Gas Co., Los Angeles, Calif., representing Pacific Coast Gas Association.

Dorothy Shank, American Stove Co., Cleveland, Ohio.

Dorothy Harris, A-B Stove Company, Battle Creek, Mich.

Jane Roberts, Roberts & Mander Stove Co., Philadelphia, Pa.

Jane Tiffany Wagner, Electrolux Refrigerator Sales, Inc., New York, N. Y.



Home Service Committee making plans for 1935. Standing—left to right: Ada Bessie Swann, R. J. Canniff, Ruth Soule, Helen Bates, Mrs. Lyda Flanders, Jane T. Wagner, F. R. Wright, Mrs. Arra Mixter, Elizabeth Sweeney
Seated—left to right: Dorothy Shank, Jessie McQueen, Margaret Nevins, Jane Roberts, Beatrice Wagner, Betty Boyle

R. J. Canniff, Pittsburg Water Heater Co., Pittsburg, Pa.

Agnes Gleason, *American Gas Journal*, New York, N. Y.

Charlotte Hood, *Gas Age-Record*, New York, N. Y.

Mrs. Ethel LaCour, *Natural Gas*, Cincinnati, Ohio.

George Finley, *Western Gas*, Los Angeles, Calif.

Work Outlined

An outline of the plan of work as finally developed is as follows:

I HOME SERVICE OPERATION

(a) *Home Service Records.* Since the questionnaire on home service operation, which was part of the 1934 plan of work, indicated a lack of standardization through the different departments in the keeping of records, a record-procedure will be developed by this subcommittee to make suggestions to home service departments.

(b) *Home Service Budgets.* A study to be made on the advisability of gathering information on the distribution of expense according to work done in home service departments.

II REGIONAL ORGANIZATION

(a) *Regional Programs.* A plan for developing programs on home service activities as a part of each of the Regional Sales Conferences.

(b) *Regional Groups.* The formation of groups of home service di-

rectors according to the subdivisions now used by the Regional Sales Conferences. These groups to function similarly to those now organized with the New England Gas Association and the Pacific Coast Gas Association.

III KITCHEN PLANNING

At the request of the chairman of the Commercial Section, a Home Service Subcommittee will compile a report of progress made in kitchen planning work in those companies which were reported in the Commercial Section Kitchen Planning Committee of last year.

IV SALES PROMOTION

(a) *Appliance Demonstrations.* Suggestions on new and effective ways to present information on appliances during regular group demonstrations.

(b) *House Heating Tie-In.* A study of ways of bringing house heating information into home service classes and home contacts to tie-in with company house heating campaigns.

(c) *Water Heating Tie-In.* A continued study of ways and means of including water heater information in the home service program. The assembling of a book folder on water heater consumer pieces, skits and other projects used in different companies with special appeal to women's groups. A review of

information excluding sales facts which is available from manufacturers, and suggestions on what is desired on this angle of the subject.

- (d) *Refrigeration Facts.* The assembling of facts and information on refrigeration from gas company laboratories and those of colleges and universities, in the form of a pamphlet to be made available to home service departments and to research departments of colleges whenever requested.

V EDUCATION

A continued study of suggested gas equipment courses for use, upon request, in those colleges of home economics where courses are under way on household equipment, and where students are interested in entering home service work.

VI CONTEST ON SKITS

In home service experience it is found that nothing better than skits or playlets has been found to interest women's groups and employee classes on gas appliance information.

A compilation in last year's committee report on skits now in use developed not more than 10 that could be generally used in different kinds of programs, such as customer classes and in regional sales programs. The details of a contest on skits will be developed and carried out by this subcommittee.

VII CONSUMER EDUCATION

A study of ways to present the A. G. A. Seal of Approval during demonstrations to women's groups; on home call work; and in local newspaper publicity. Also a resumé for committee information as to plans under way by government organizations and the General Federation of Women's Clubs on the subject of Consumer Education.

VIII RADIO WORK

A study of present methods used in radio broadcasting by home service departments to include types of programs most successful; cost; length of broadcast; hour of day most successful, etc. Frequent inquiries at A. G. A. headquarters on the value of radio work in sales promotion makes this study important.

IX EMPLOYEE EDUCATION

Since home service people in their daily contacts with customers meet situations with which it would be helpful to familiarize company employees, it is planned

to outline a few demonstrations which home service people might present, when requested, to employee groups. This employee presentation is to be called "What Women Are Asking Home Service Workers."

X A. G. A. LABORATORY RESEARCH

A report is requested from the committee representative of the A. G. A. Testing Laboratory on research useful and of interest to home service departments.

Testing Domestic Gas Appliance Thermostats

THE American Gas Association Testing Laboratory now has the facilities available to test gas appliance thermostats under the recently approved Listing Requirements for Water Heater, Gas Range and Space Heater Thermostats.

Several years of research have contributed to the preparation of these standards by committees of the Association. The new requirements include minimum standards of construction and assembly covering such items as resistance to pressure, strength, dial marking, resistance to corrosion, adjustments, connections and so on. They also embody performance requirements for capacity, dial calibration, leakage, continued operation, overshoot, and other tests peculiar to individual types of these devices. Thermostats which meet all of the applicable requirements are entitled to bear the Laboratory Listing Symbol which is a guarantee that the device on which it appears will give satisfactory service on appliances when properly installed.

Manufacturers of thermostats should derive many benefits from having their equipment tested and listed by the A. G. A. Testing Laboratory, since in meeting the standards of construction and performance, increased assurance is obtained that the device will meet the needs of the appliance manufacturers. As has been the case with gas appliances, manufacturers of thermostats should be greatly benefitted in the development of their products as a result of the Laboratory's testing service.

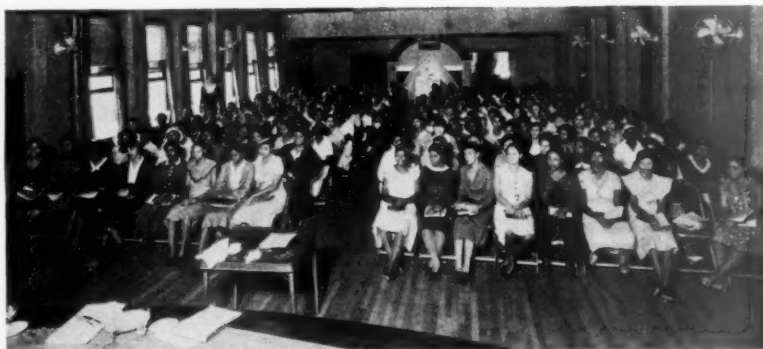
Minneapolis Company Adopts Home Service

THE Minneapolis Gas Light Company has inaugurated a home service department, according to an announcement by John K. Swanson, vice-president and general manager. Miss Helen M. Diamond, formerly of the home service department of The Peoples Gas Light and Coke Company, Chicago, Illinois, is director of the new service. Miss Diamond is a graduate of the School of Home Economics of The Stout Institute, Menomonie, Wisconsin, and has a Master of Science degree in Home Economics from the University of Minnesota.

In addition to home calls, the work of the new department will include scheduled talks and demonstrations for women's clubs and groups throughout the city. Talks and demonstrations are also planned for cooks and other employees of hotel and restaurant owners who have appealed for help in solving their cooking problems and for suggestions on the better use of their gas ovens.

Other activities will include educational tours of the gas company for housewives, recipe service and inner-company cooperation.

Cooking Class for Colored Maids



One of a series of cooking demonstrations for colored maids conducted in Dallas by Miss Albertine Berry, home economics director for the Lone Star Gas System. Attendance totaled 1113. The classes were held on four successive Thursday afternoons, the maid's "day out." At the close of the classes, a special class was held in the evening at which certificates were presented to 291 who finished the course. The classes were announced in Dallas newspapers, including the colored newspaper, and were conducted with the cooperation of the local Y. W. C. A. Response was so enthusiastic that similar classes are being planned as a regular part of the home service program.

TECHNICAL SECTION

C. A. HARRISON, Chairman

H. W. HARTMAN, Secretary

F. A. LYDECKER, Vice-Chairman

Present Day Trends Reflected in Technical Section Program



C. A. Harrison

MEETINGS of the Managing Committee and the main Distribution, Chemical, and Gas Production Committees of the Technical Section were held in the Cleveland Hotel, Cleveland, Ohio, December 15, 1934 for the purpose of organizing the Technical Section

program for the current year.

C. A. Harrison, of Henry L. Doherty and Company, New York, chairman of the Technical Section, presided at the Managing Committee meeting to which members of the main committees had been invited. Chairman Harrison in opening the meeting made the following comments concerning the activities of the Technical Section for 1934-1935:

"During the period just passed we have undoubtedly emphasized economies in operating and maintenance items of gas utility operations in our activities in the Technical Section. Certainly this emphasis has been in accord with the trend of the times. In contemplating the nature of our activities in the period just ahead of us, we may well consider the changing trends so that the emphasis of our activities may continue in conformity with the time.

Load Building Problems

"As I see it, the gas industry generally in the period just ahead will be carrying on extensive load building programs to secure heavy duty appliances on smaller margins between the cost and sale price of gas. Heavy additional demands will be made on our production and distribution facilities. At the same time, new capital for additions and betterments will not be plentiful.

"In such a program, the technical talent of our industry can be of major assistance in the preliminary analysis looking toward the determination of suitable rates and load-building programs. Also, the engineer must find methods of serving the resulting heavy demands on his plant and distribution system with minimum expenditures of new capital. These problems are not new, but I suggest that they will assume increasing importance in the immediate future. Therefore, I propose for your consideration

an increasing emphasis in the activities of the Technical Section on those problems facing the technical man of the industry due to heavy load-building problems accompanied by minimums of available capital.

"Since certain sections of our industry have already met these problems to a greater extent than other sections, the value of cooperation in the industry through the activities of our Technical Section should be apparent. I suggest this emphasis as the keynote in our program of activities of the coming year for your consideration."

Following the opening remarks by the chairman, the activities of the various committees of the Technical Section were discussed in the following order:

Chemical Committee

Two subcommittees only are planned in the organization of the Chemical Committee: the Subcommittee on Analyses and Tests, J. F. Anthes, chairman, The Brooklyn Union Gas Co., Brooklyn, N. Y.; and the Subcommittee on New Developments, Louis Shnidman, chairman, Rochester Gas and Electric Corporation, Rochester, N. Y.

The Subcommittee on Analyses and Tests will have in charge principally the revision of the Gas Chemists' Handbook. The first section of the revised Handbook on "Gas Analyses" will be ready for publication this year. Seventy-five per cent of this section has been completed up to the present time. In addition, this subcommittee will consider analysis and test procedures in connection with new developments in the industry.

The Subcommittee on New Developments will summarize the scientific and technical developments affecting technique of gas production, modification and distribution. It will appoint "sponsors" for various subjects of importance to the industry as the need for activity on these subjects arises.

DISTRIBUTION CONFERENCE DATES CHANGED

It has been necessary to change the dates of the 1935 Distribution Conference from those previously announced in the Convention Calendar in the January issue, to Thursday, Friday and Saturday—May 2, 3 and 4.

Among the specific activities discussed for the Chemical Committee were the following:

1. Continuation of the research conducted by L. M. Van der Pyl of the Pittsburgh Equitable Meter Company into meter diaphragm changes in service. This work will probably be available as a paper at the Joint Committee Conference of the Production and Chemical Committees.
2. Service freeze-ups from a chemical standpoint.
3. Problems connected with condensation and corrosion; products of combustion. This problem is considered of increasing importance, especially where gas house heating and conversion jobs are increasing at a rapid rate; also in connection with gas refrigerator units.
4. The role of sulphur compounds in gas. The variety of gas-making materials at present being used and the different gas mixtures at present being supplied seem to make this problem of increasing importance.
5. Corrosion of plant equipment.
6. Gum in gas. Papers from the Koppers organization covering liquid phase gum, as well as vapor phase gum, will probably be available for the Joint Committee Conference of the Production and Chemical Committees.
7. Comparison of analyses of prepared samples of gas by different apparatus. The purpose of this latter activity is to develop a fuller knowledge of the efficiency of different types of apparatus for the analysis of gas at present in use, including the Hempel Apparatus, various modifications of the Hempel Apparatus at present in use by different companies, the Morehead Apparatus, the Burrell Orsat Apparatus, and in addition the U. S. Steel and the Shepard Apparatus.

It was also decided that at least one member of the Chemical Committee should act as a liaison member of the Gas Production Committee and the Distribution Committee in order to effect necessary coordination with the programs of the two operating committees.

Distribution Committee

One of the most important activities of the Distribution Committee is the continuation of the research work on pipe coatings and corrosion. C. F. Turner, chairman of this subcommittee, reported that the pro-

gram for the year included the following main features:

1. Completion of the so-called "soil box test" at the Bureau of Standards.

This test is designed to develop an accelerated laboratory procedure to determine those main qualities of a pipe coating that the research to date has shown to be most essential in insuring the greatest permanency of protection.

2. Preparation of a paper or papers for the Distribution Conference that would outline in non-technical terms the practical application of the committee's research findings so that all distribution men can make the most use of the reports. This will probably be accompanied by an exhibit of the specimens exhumed, both coated and uncoated.
3. Removal from the ground of the third set of coated pipe specimens buried

of the greatest importance at the moment, the thought being that the members vitally interested could use this general information as a basis for a more detailed study of the various subjects.

With the above general thought, the following subjects were suggested for consideration by the remaining subcommittees:

Pipe Joints Subcommittee

1. Consideration of the new Waldron Clamp just put on the market by the S. R. Dresser Manufacturing Company.
2. Consideration of the latest types of joints on services, including stream-line joints, solder joints, stuffing box joints, etc.
3. Securing of further data on actual experience with the use of diethylene glycol, as well as other liquids with similar qualifications that have been developed for the same purpose.

6. Use of gas or air as a test medium.
7. Meter connections and meter washers. (To follow up on the report of the Ontario Foundation on this subject.)
8. Methods of testing tin gas meters with small rates of flow.

This represents a continuation of the study started last year and is considered to be of consequence in connection with consumption through refrigerators, pilot lights, etc.

The following additional subjects were under consideration either to be handled through appointment of additional subcommittees, or by sponsors:

1. To study as far as necessary the subject of regulators and regulation of gas pressures.

This subject will probably be placed in the hands of a new subcommittee in the near future.



Meeting of the Managing Committee of the Technical Section, held in Cleveland, December 15, 1934. Included in the photograph are: C. A. Harrison, F. A. Lydecker, O. S. Hagerman, J. F. Antbes, James Ashworth, W. K. Beard, E. M. Bliss, R. M. Conner, F. Denig, L. J. Eck, F. M. Goodwin, H. W. Hartman, D. B. Hartson, A. B. Huyck, Erick Larson, F. D. Lohr, S. J. Modzikowski, E. A. Munyan, K. B. Nagler, J. A. Perry, F. B. Parke, D. A. Powell, O. Reiner, Louis Shnidman, F. O. Suffron, S. S. Tomkins, G. W. LeRoy Travis, F. C. Weber, L. J. Willien, and H. B. Young

throughout the country for the A. G. A. research, with a view to again presenting the results after two years additional exposure to soil conditions, and to correlate these conclusions so far as possible with inspection of actual pipe lines in service.

Dr. Scott Ewing, the American Gas Association's research associate at the Bureau of Standards, will be available to company members as a consultant in any specific coating problems they may have during his travels throughout the country removing the buried specimens. A definite announcement regarding this consulting service will be made shortly.

Erick Larson, chairman of the Distribution Committee, explained that with the exception of the above activity, the various research projects under the jurisdiction of the Distribution Committee had been brought to a close. In general, therefore, it seemed best that the remaining activities of the committee should represent an endeavor to present to the industry as much general information as possible on subjects

4. Consideration of experience with cast iron screw joints.

Meters and Metering Subcommittee

D. P. Allen of Washington, chairman of this subcommittee, reported that the following subjects had been suggested to date:

1. To keep in touch with an investigation said to be under way by the California Commission relating to any increase of fast meters that might occur due to changes from a supply of manufactured to a supply of natural gas.
2. Possible standardization of tin meters specifications. (Suggested by Walton Forstall.)
3. Measurement of large volumes of gas. (Contact to be maintained with Committees of the Natural Gas Department working on similar subjects.)
4. Simplification of standardization of meter repair cost accounting.
5. Meter performance records, inventory records, and repair cost records essential to establishing meter replacement, testing, and repair policies.

2. Consideration of stoppers in services for shut-off meters, etc.
3. Portable equipment and accessories.

This subject was again assigned to F. M. Goodwin as sponsor.

It was suggested that such matters as ventilators, generators for lines attached to cars, gasoline-driven generators, gas-driven guns, non-sparking tools, etc., be included for consideration under this subject.

Gas Production Committee

K. B. Nagler, chairman of the Gas Production Committee, reported the following subjects under consideration for study by the various subcommittees:

Water Gas Subcommittee

W. K. Beard, Chairman

1. Use of butane in the production of water gas (to include all current work, specifically that of E. L. Fischer at Davenport, Iowa; and work done at Waterbury, Conn., with which J. G. O'Keeffe is familiar).

2. Production of carburetted water gas with heavy oils and related tar problems; use of tar in generators, etc.
Heavy oil tar handling and emulsion treatment—Sponsor—F. B. Parke.
3. Production of high B.t.u. gas as a substitute for natural gas or natural-manufactured gas mixtures (to include work at Chicago, St. Louis, the Pacific Coast, etc.).
4. The lampblack problem with reformed gas—Sponsor—H. B. Young.

Carbonization and Coke Subcommittee
A. B. Huyck, Chairman

1. Use of coke breeze.
 - (a) Increasing per cent of coke breeze used in producers.
 - (b) The screening of coke breeze.
 - (c) Mixing of breeze with coal before carbonizing.
2. Experience with a test oven, to determine the expansion of certain coals—at Everett, Mass.; Koppers Research Corporation.
3. Carbonization problems of small plants (if any pertinent questions develop upon inquiry).
4. Customer aspect of dust proofing coke (specific problem to develop upon inquiry to The Philadelphia Gas Works Company—J. V. Postles).
5. Purification of Gas.

- (a) 100% liquid purification by two-stage Thylox process covering operation of 45,000 M cu.ft. per day plant at Belle, West Virginia.
 - (b) Operation of pressure thionizers at St. Louis.
 - (c) Operating data from plants using granular oxide.
 - (d) Review of liquid and dry purification with particular reference to use of NH_3 as an alkali.
 - (e) Joint work with Chemical Committee on Gum Problem.
6. Paper on safe practices in gas plants.

Distribution Conference

It was decided to hold the Distribution Conference in Cleveland, Ohio, on May 2, 3, and 4, 1935. A three-day conference was recommended in order to give ample opportunity for the distribution engineers to visit the A. G. A. Laboratory and inspect testing equipment and facilities applicable to distribution work.

Joint Committee Conference of the Production and Chemical Committees

At a joint meeting of the Gas Production and Chemical Committees, it was decided to hold the joint conference of these two committees at the Hotel New Yorker, New York City, on May 13 and 14, 1935. A joint Program Committee was appointed, and it was recommended that Association

Headquarters give consideration to the possibility of holding a three-day instead of a two-day conference.

The following members were present at the various committee meetings in Cleveland:

Managing Committee—C. A. Harrison, chairman, F. A. Lydecker, vice-chairman, O. S. Hagerman, W. K. Beard, F. Denig, D. P. Hartson, F. D. Lohr, K. B. Nagler, D. A. Powell, Louis Shnidman, G. W. LeRoy Travis, L. J. Willien, J. F. Anthes, E. M. Bliss, L. J. Eck, A. B. Huyck, S. J. Modzikowski, J. A. Perry, O. Reiner, F. O. Suffron, C. F. Turner, H. B. Young, James Ashworth, R. M. Conner, F. M. Goodwin, Erick Larson, E. A. Munyan, F. B. Parke, S. S. Tomkins, F. C. Weber.

Chemical Committee—S. S. Tomkins, chairman, Louis Shnidman, vice-chairman, J. F. Anthes, C. F. Turner, L. M. Van der Pyl, G. E. Ludwig, E. M. Bliss, S. J. Modzikowski, J. M. Gonder.

Distribution Committee—Erick Larson, chairman, D. P. Allen, James Ashworth, R. M. Conner, D. P. Hartson, C. F. Turner, F. M. Goodwin, F. A. Lydecker, G. W. LeRoy Travis, C. A. Harrison, K. R. Knapp, F. O. Suffron.

Gas Production Committee—K. B. Nagler, chairman, W. K. Beard, L. J. Eck, A. B. Huyck, A. R. Powell, L. J. Willien, F. D. Lohr, O. Reiner, H. B. Young, F. B. Parke.

Gas-, Coke-, and By-Product-Making Properties of American Coals

RESULTS of comprehensive carbonization tests on 30 coals and coal blends have just been announced by the Bureau of Mines and the American Gas Association in Bureau of Mines Monograph 5, "Gas-, Coke-, and By-Product Making Properties of American Coals and Their Determination," by A. C. Fieldner and J. D. Davis.

In 1927 and 1928, a cooperative survey by the Bureau of Mines and the American Gas Association showed that there was no generally accepted and easily controllable test method for evaluating coals for carbonization. During 1928 and 1929, the two agencies cooperated in developing a suitable test method. This is described in detail in Monograph 5.

In this test 75 to 180 pounds of coal are inclosed in a gas-tight metal retort and heated in a furnace at a uniform temperature until all the gas and by-products are driven out of the coal. Obviously such a test is cheaper to carry out than a full-scale plant test using many tons of coal.

Using this equipment, 30 coals were carbonized at 500°, 600°, 700°, 800°, 900°, 1000°, and 1100° C. and the yields and properties of the various products studied. Details are presented tabularly for all the coals and coal blends and graphically for one coal, both washed and unwashed. Study of the results shows the

conditions under which maximum quantity or quality of various products can be obtained.

Commercial plant yields for eleven of the coals were available. Comparison with the test results showed good agreement of plant and test data obtained at 900° or 1000° C. This fact has led to the adoption of the test by several operators.

In addition to the usual proximate and ultimate analyses and ash-fusion and calorimeter tests, the samples of coal as carbonized were analyzed for sulfur forms, carbon dioxide and fusain. Solvent extractions, rational analyses and petrographic examinations were conducted. The softening and plastic properties, agglutinating index, friability and slacking properties were determined. Three standard assay tests—Fischer, Fuel Research Board (Great Britain) and U. S. Steel Corporation—were applied. Results from this thorough and comprehensive study of the raw coal were correlated, in so far as possible, with the behavior of the coal on carbonization.

On the whole, correlation of the various special tests of coal properties with carbonization results has shown them to be of little practical value. The only ones recommended for commercial use beside the proximate and ultimate analysis are the agglutinating-value or plastic-range tests for indicating weathering or oxidation of coal and for preliminary experimental

tion on blends, and the assay-distillation tests for laboratory investigations where the necessary correlation factors can be established.

This survey of the gas, coke and by-product making properties of American coals is a veritable mine of information to coal-gas producers, the operators of coke ovens, fuel engineers, purchasing agents, and coal mine operators.

The coals used came from the Pittsburgh and Thick Freeport beds in Pennsylvania; the Alma, Chilton, No. 2 Gas, Pittsburgh, Pocahontas No. 4, and Sewell beds in W. Virginia; the No. 6 bed in Illinois; the Elkhorn and Green River beds in Kentucky; the Black Creek, Mary Lee and Pratt beds in Alabama; the Taggart bed in Virginia; the Davis bed in Maryland; the Lower Sunnyside bed in Utah; and the B bed in British Columbia. Two different blends of Davis and Pittsburgh bed coal, one blend of Mary Lee and Pratt bed coal, two blends of Pittsburgh and Pocahontas No. 4 bed coal, and two blends of Pittsburgh and Sewell bed coal were tested. Mary Lee coal and Pratt coal were studied as mined and washed.

Copies of this Monograph may be obtained from the American Gas Association, 420 Lexington Avenue, New York, N. Y., at a price of \$1.00 per copy to members for the paper bound edition and \$2.00 to members for the cloth bound edition; price to non-members, \$1.50 per copy and \$3.00 per copy respectively. If ten or more copies are ordered a 10% reduction will be made.

Western Gas Construction Company Consolidates

THE business of The Western Gas Construction Company, of Fort Wayne, Indiana, has been consolidated with that of its parent company, The Koppers Construction Company, of Pittsburgh, Pennsylvania, and the activities formerly carried on in the name of The Western Gas Construction Company will hereafter be carried on under the name of The Western Gas Construction division of The Koppers Construction Company.

The company began operations in 1888 as designers and builders of manufactured gas plant equipment, valves and

other equipment for utility and industrial fields. At the time the Koppers interests assumed control of The Western Gas Construction Company in 1917 the buildings, including the machine shop, plate and structural shop, foundry, pattern shop, offices and other buildings covered an area of thirteen acres. The volume of business expanded steadily and in 1926 the company found it necessary to purchase an additional plant site of approximately thirty acres upon which was erected a new machine shop, plate and structural shop and an office building.

The consolidation, effective as of January 1, 1935, does not involve any change in physical operations or activities which will continue to be centered in Fort Wayne, Indiana.

Chill Chaser Campaign Winners

THE Mississippi Power and Light Company has been awarded first prize in the house heating "Chill Chaser Campaign" recently concluded among companies serving natural gas in five southern states. The companies participating in this campaign, which resulted in the sale of 33,359 space heaters, were: Memphis Power and Light Company, Mississippi Power and Light Company, West Tennessee Power and Light Company, Arkansas Power and Light Company, and the United Gas System, all subsidiaries of the Electric Bond and Share Company.

The Louisiana Power and Light Company and the United Gas System tied for second place in the contest. Winners of the executive trophy contest were announced as follows: R. C. Anderson, Mississippi Power and Light Company; Dean A. Strickland, United Gas System; and Sam Watts, Louisiana Power and Light Company.

A comprehensive selling campaign, built around the slogan, "You need a little Chill Chaser in your home this winter," brought quick public acceptance and ready dealer cooperation. One-half of the space heater sales were made by cooperating dealers.

Judges of the contest were: H. F. Smiddy and Norman Read, of the Electric Bond and Share Company, and J. W. West, Jr., of the American Gas Association.

New Circular on Standards for Gas Service*

THE National Bureau of Standards has just issued a new edition of its publication entitled "Standards for Gas Service." The earlier editions of this publication, which appeared in 1912, 1913, 1915 and 1920, are familiar to many members of the American Gas Association as Circular 32. The earlier editions met with a demand large enough to indicate a real need for a publication of this kind, primarily as a source of technical information for public officials and civic groups concerned with the regulation of utilities, the consideration of franchises, etc., but to some extent also as a discussion of good practice which would be useful to the gas industry itself.

It is evident that the changes which have taken place in the industry since 1920 have rendered any discussion of that date obsolete in many respects. Commission regulation of the operations of gas companies, in its infancy then, is well established in a majority of states and has provided a substantial background of experience that was lacking a decade ago. The establishment of the American Gas Association Laboratory with its program of approvals, and the researches conducted there and elsewhere have established a basis of definite agreement or accurate knowledge for many things that were formerly indefinite or based on conjecture. These changes made it necessary that the discussion of standards for service be radically revised if it was to retain its usefulness; in fact, it has been almost completely rewritten.

The first stage in the revision of the circular was an attempt to find out what problems in connection with gas service were considered important and still not definitely answered. All State public

utility commissions were invited to submit questions. These questions, to the number of 64, were submitted back to the commissions for answer and to a Committee of the American Gas Association under the chairmanship of Walter C. Beckjord. An attempt to answer them was also made by the National Bureau of Standards. In all, fairly complete sets of replies were assembled from 35 sources. These were mimeographed and widely distributed and with additional material were made the basis for further discussion at two annual meetings of State commission engineers, and at three meetings of Mr. Beckjord's committee. Tentative recommendations, based in considerable part on these discussions, were drafted and submitted to the committee for criticism. In all, the American Gas Association's representatives, under Mr. Beckjord's capable leadership, discussed the major problems of service five different times, and more than fifty men participated at one time or another.

About the time this discussion was started, questionnaires were mailed to each gas company serving more than 1,000 customers, for the purpose of ascertaining what the managements of the individual companies considered desirable practice with respect to many things which affect service. The 371 replies received have been summarized in a set of 18 tables and constitute an important section of the new circular.

Although the advice of the groups mentioned was an indispensable guide in the preparation of the publication, their assistance does not imply any indorsement of the views expressed in the circular, the responsibility for which rests entirely with the Bureau. Nothing has been recommended merely because it is the usual practice or represents the consensus of any group whatever. In each case an effort has been made to ascer-

New York State received on December 17 its first royalties for the sale of natural gas from a well on state-owned reforestation land in the town of Greenwood, Steuben County. The royalties were met by a check for \$170.93 from the Empire Gas and Fuel Company Ltd., of Wellsville, in payment for 2,011,000 cubic feet produced from the well during nine days of operation in November.

tain definitely why one or another standard is to be preferred.

The first eight sections of the circular constitute, in substance, the statement of the reasons for the recommendations made. Section 9 is a set of rules suggested for adoption by a State regulatory body. Section 10 is a compilation of the substance of existing state rules so arranged that all the rules relating to any subject may be quickly compared. Section 11 is the summary of replies from gas companies to the questionnaire mentioned above, and Section 12 is a description, for the information of the general reader, of the properties, sources, and methods of manufacture of the gases which enter city supplies, with some discussion of the factors which should determine their selection. Circular 405 may be purchased from the Superintendent of Documents, Washington, D. C., for 20 cents.

—E. R. WEAVER.

*Publication approved by the Director of the National Bureau of Standards, Department of Commerce, Washington, D. C.

TESTING LABORATORY

R. M. CONNER, Director

Managing Committee: J. S. DeHART, Jr., Chairman

N. T. SELLMAN, Secretary

Requirements for Mechanical Pipe Joints and Bell Joint Clamps

By F. R. WRIGHT

A. G. A. Testing Laboratory,
Cleveland, Ohio

ANNOUNCEMENT is made of the approval of the American Gas Association Requirements for Bell Joint Clamps and Mechanical Joints for Cast Iron Pipe by the Association's Executive Board at its fall meeting.* The testing and certification of equipment covered by these standards will be carried out at the Association's Testing Laboratory in Cleveland. Copies of the requirements and information regarding test costs and procedures may be secured upon application to the Laboratory Director.

The above mentioned standards, including both construction and performance requirements, were developed under the direction of the Technical Section Committee on Pipe Joint Research as a result of extensive research conducted on such equipment by the Testing Laboratory over a period of several years.

The significance attached to this work is exemplified by the statement by Addison B. Day, president and general manager, Los Angeles Gas and Electric Corporation, concerning the Association's activities and appearing in the December issue of the AMERICAN GAS ASSOCIATION MONTHLY. Mr. Day said, "The Pipe Joint Committee for the past six years has been conducting a series of tests at the Case Engineering School under the supervision of the A. G. A. Testing Laboratory, which will mean many millions of dollars' savings to the gas industry."

Four Investigations

The Laboratory's research program constituted one of the most comprehensive series of investigations ever conducted on pipe joint construction and repair. The project resolved itself into four major investigations, which were conducted in the order named:

1. New Cast Iron Bell and Spigot Joint Construction,
2. Repair of Cast Iron Bell and Spigot Joints,
3. Mechanical Joints for Cast Iron Pipe, and
4. Welded Pipe Joints.

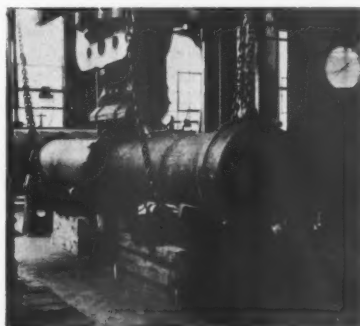
While the second and third items listed above are the only ones that relate directly to the standards mentioned, a brief review of the tests conducted and the re-

* Tentative approval granted subject to final approval by member delegates at the Association's annual convention in 1935, in accordance with regular procedure.

sults secured under Item 1 may be of interest since many of the tests and studies made formed the basis of subsequent test procedures.

1. New Cast Iron Bell and Spigot Joint Construction

The need for investigation of this problem became most pressing with the advent of higher distribution pressures coupled



16" specimen with leak clamp mounted for lateral deflection test

with the changeovers from manufactured gas to natural gas or to mixtures of the two gases. The Laboratory in its study of this problem first availed itself of the extensive knowledge and information that had been gathered throughout the years on the subject of pipe joints through similar investigations and in this preliminary study received the full and hearty cooperation of the distribution engineers of the industry.

The first step that had to be taken before actual test work could be gotten under way was the accurate determination of conditions of usage or the factors affecting joints in service. Second, it was necessary to devise ways and means of duplicating by Laboratory methods, the effects produced and to provide accelerated tests in order to produce as far as possible results simulating a period of service of 15, 20 or 25 years. While work was proceeding along this line a survey was made of the types of joint construction employed or recommended by the outstanding gas distribution engineers throughout the country.

In this study various sizes of joints were

constructed, including principally those in the 4- and 16-inch sizes. All types of joints used to any appreciable extent were constructed and tested, including those made up of the following materials:

- a. Cement and yarn
- b. Cement, sand and yarn
- c. Cement, rubber and braided jute
- d. Lead wool and yarn
- e. Cast lead and yarn
- f. Cast lead, rubber and braided jute

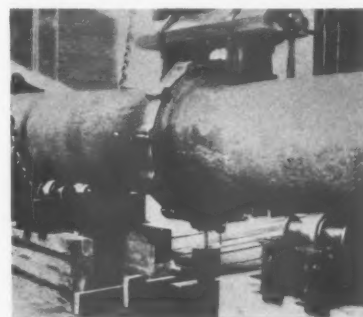
In the study of the physical conditions affecting bell and spigot joints, the stresses set up by seasonal variations in ground temperatures were found to be the most important, although line pressures, vibration, effects of ground settlement, etc., were also found to have some bearing on the subject. Various tension, compression, and deflection tests were, consequently, developed and applied under different conditions of internal air pressure on the joint. A sufficient number of tests were made to indicate the ability of the joint to stand up in service for a period of years.

In addition to these tests, many additional and collateral investigations were made, such as a study of the characteristics of different yarns used in joint construction including the effects of various gases, as well as a study of various commercial grades of lead.

Briefly, the investigation disclosed that the more common types of cast iron bell and spigot joint construction are not to be recommended for use except in low pressure distribution systems.

2. Repair of Cast Iron Bell and Spigot Joints

The first step in this study was to contact the various gas distribution engineers re-



Close-up of 16" specimen with leak clamp mounted for deflection test

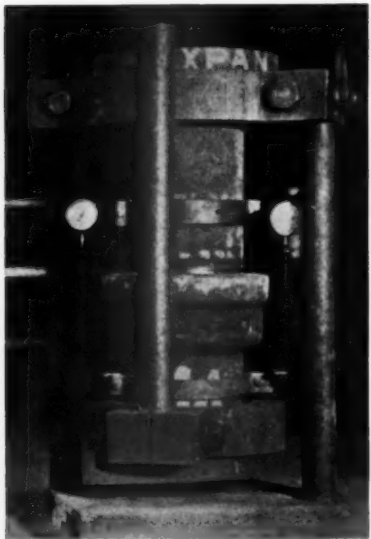
garding methods employed in the repair of bell and spigot joints and secure their recommendations as to the methods of repair that had given the most satisfactory service. The most common practices seemed to be:

- a. Cut-out and remake the joint
- b. Re-caulk
- c. Use leak clamps

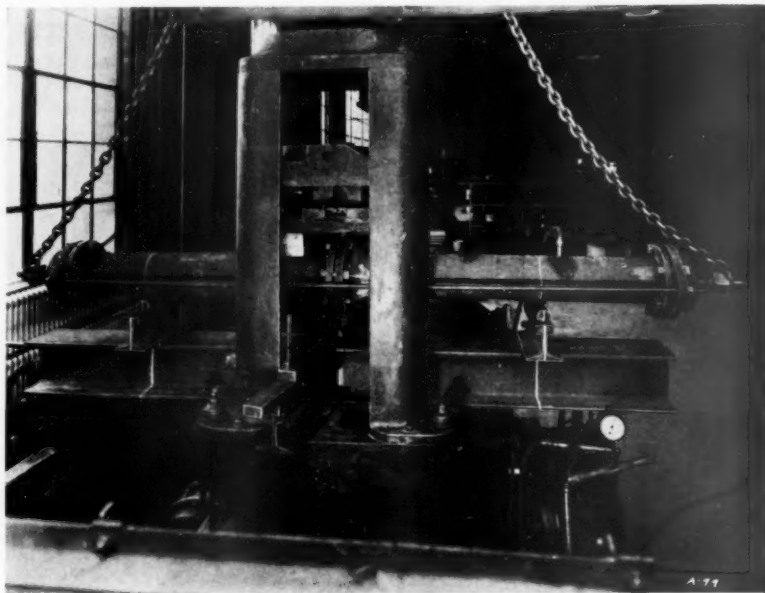
In all, six different methods of pipe joint repair were investigated. Many preliminary tests were made on some 30 specimens of old joints which had been removed from service by various gas companies and forwarded directly to the Laboratory, each accompanied by a complete history, including the period of service, type of soil in which buried, and other pertinent data which might have a bearing on its conditions. Some of these joints had been in continuous service for periods as long as 50 years.

Tests of the old joints as received and after being repaired by different methods as well as additional tests on other repaired joints, disclosed that the use of leak clamps offered the most satisfactory solution to this problem. The major part of this study was, therefore, devoted to tests on all available makes of leak clamps using joints of the 6-, 16- and 36-inch sizes. In the investigation of such equipment it was necessary not only to test the various makes and types of clamps but extensive studies were also required of gasket materials, leak clamp design, as well as methods of application. Various methods of remaking the joint

* For more detailed information on nature, extent and result of the investigation see the paper by K. R. Knapp, presented at the Association's Distribution Conferences in 1931 and 1932; American Gas Association Proceedings for 1932, pp. 714-720; also paper by F. R. Wright on "Use of Leak Clamps in Repairing Cast Iron Pipe Joints." A. G. A. Monthly, January, 1932.



Specimen joint mounted ready for application of tension and compression test



Mechanical joint specimen mounted for lateral deflection test

prior to the application of leak clamps was also an essential part of the program.

In brief, the results of this research made possible recommendations on desirable properties of clamps, the kind of gaskets to be used, methods to be followed for their successful application, and in general to cover rather definitely the matter of joint repair.*

The requirements for bell joint clamps developed by the Committee on Pipe Joint Research and approved by the Association's Executive Board are given below:

PART 1. CONSTRUCTION REQUIREMENTS

SEC. 1. General

a. Cuts or blue-prints showing the dimensions of all essential parts and accessories and the material from which they are made shall be supplied in duplicate with each clamp submitted for test.

b. The manufacturer shall submit in each case detailed instructions for the mounting of the clamp. These shall specify the force in inch-pounds to be applied to the wrench for the purpose of tightening the bolts.

c. The clamp shall be so designed that it will not distort the gasket excessively when applied to the joint.

d. Three sizes of bell joint clamps shall be tested as representative of the performance of the full range of nominal sizes, from 3-inch to 48-inch. These sizes shall be 6-inch, 16-inch, and 36-inch. Bell joint clamps of intermediate sizes shall be considered as being satisfactory if the clamp of the next larger test size meets these specifications and if on inspection they prove to be of the same design and construction.

e. The construction of parts not covered by these requirements shall be in accordance with reasonable concepts of substantiality and durability.

SEC. 2. Gaskets

a. The gaskets submitted with the clamp shall be of the same design, construction and composition as furnished the trade.

b. The gasket shall be of ample cross section. The face making contact with the bell face shall be at least twice the width of the nominal joint space between the bell and spigot. The adjacent gasket face making contact with the spigot shall be at least $1\frac{1}{2}$ times the width of this joint space.

SEC. 3. Bolts

The bolts submitted with the joints shall be of the same design, construction and material as furnished to the trade.

SEC. 4. Rigidity

A bell joint clamp shall not show evidence of undue distortion or strain when assembled according to the manufacturer's directions.

SEC. 5. Adaptability

The design of the clamp shall be such as to permit its application without sacrifice of strength or rigidity to bell and spigot joints of dimensions commonly encountered in practice.

SEC. 6. Assembly

a. The bell joint clamp shall be capable of ready mounting on a bell and spigot joint when installed in the field without unnecessary alterations, except as provided in the design.

b. The gasket and clamp shall be of such construction as not to permit undue extrusion of the gasket material.

c. The construction of the clamp shall be such that the gasket shall make proper contact with the bell face, pipe and follower ring.

PART II. PERFORMANCE REQUIREMENTS

SEC. 1. Leakage

A bell joint clamp shall not permit leakage from a bell and spigot joint.

Method of Test

A bell and spigot joint shall be prepared by first thoroughly cleaning all surfaces of the joint. A good grade of yarn free from oil and grease shall be caulked firmly into the bottom of the joint to a depth of $2\frac{1}{2}$ inches. The remainder of the joint space shall then be filled with molten lead. The lead shall be thoroughly caulked and finished off smoothly in a workmanlike manner with the surface of the lead not more than $\frac{1}{8}$ inch back from the bell face. The surface of the joint and adjacent material, which will be in contact with the gasket shall be thoroughly cleaned of all foreign matter.

A soap and water solution shall be applied to the gasket and to all metal which it will contact to act as a lubricant. The clamp shall be applied in accordance with instructions furnished by the manufacturer.

The specimen shall be placed horizontally in a testing machine capable of deflecting the joint definite amounts, in such a manner that it rests on supports spaced as follows:

Normal Size of Pipe Inches	Span Feet
6	5
16	10
36	16

The joint shall be at the center of the span. The load shall be applied through a bridging which spans the joint, with the blocks bearing on the pipe spaced 14 inches apart. Internal air pressure of 25 lbs. per sq.in. shall be maintained on the joint throughout the test and the joint shall be constantly observed for leakage.

The load shall be applied in an amount sufficient to deflect the joint one inch at the center. The load shall then be released and the joint rotated through 180 degrees and again loaded until the specimen becomes straight before starting measurement on the next deflection. Four such deflections shall constitute one test.

The bell joint clamp shall be considered satisfactory if it shows no leakage during this test.

SEC. 2. Strength of Bolts

Bolts shall have an ultimate tensile strength of not less than four times the maximum stress recommended by the manufacturer.

Method of Test

The ultimate tensile strength of a bolt shall be determined by means of tensile tests in a calibrated testing machine. Three bolts for this test shall be selected at random from the bolts submitted with the joint.

3. Mechanical Joints for Cast Iron Pipe

At the request of the Cast Iron Pipe Research Association, the Laboratory, under the supervision of the Committee on Pipe Joint Research, undertook an investigation of various types of mechanical cast iron pipe joints, including a study of their design, construction, application and performance. Many of the tests applied were similar to those used for bell and spigot joints except that higher internal air pressures were used and final movements in the tension, compression and deflection tests were greater. The tests applied are listed below:

- Tension and compression
- Lateral deflection
- Movement due to internal pressure
- Vibration
- Gland pressure
- Effects of drip oil

The majority of these tests were made with a variety of gasket materials including the following:

- Rubber
- Fabric or duck tipped rubber
- Special combinations in which rubber was finished with a tip of lead
- Various types of asbestos gaskets
- Asbestos and rubber
- Special materials designed to resist the action of oil or gasoline

The extensiveness of this investigation may become more apparent when it is realized that during the period of the research 10 reports were issued including 265 pages of closely typewritten matter in addition to 165 blue-prints and 22 photographs. The investigation was carried on continuously over a period of more than two years, much of the work being done by American Gas Association engineers at the University of Pennsylvania in Philadelphia and at Case School of Applied Science in Cleveland, since large size testing machines were not available at the Laboratory for making the loading tests.

As a result of the large number of tests conducted the Pipe Joint Research Committee found it possible to draw up a set of construction and performance standards for joints of this character. These standards which have also been approved by the Association's Executive Board and which are scheduled for final approval by the industry at the next Annual Convention are given below:

PART I. CONSTRUCTION REQUIREMENTS

SEC. 1. General

a. Cuts or blue-prints, showing the dimension of parts and accessories and the material from which they are made, shall be supplied in duplicate with each joint submitted for test.

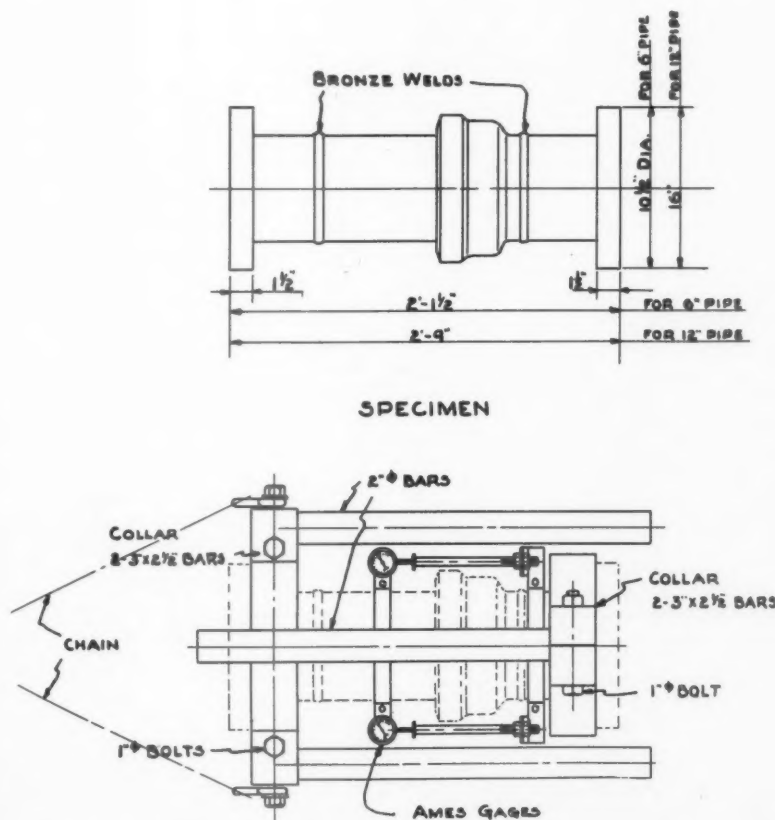


Figure 1—Apparatus and specimen for tension and compression test

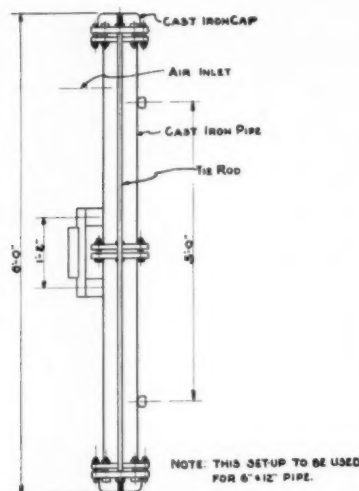


Figure 2—Apparatus and specimen for lateral deflection test

b. The manufacturer shall submit in each case detailed instructions for the preparation of the joint. These shall specify the force in pound-inches to be applied to the wrench for the purpose of tightening the bolts.

c. The construction of parts not covered by these requirements shall be in accordance with reasonable concepts of substantiality and durability.

SEC. 2. Surface

The surfaces of all parts of the joint which come in contact with the gasket shall be free from slag, scale, gas inclusions or other imperfections which would tend to permit leakage around the gasket.

SEC. 3. Gaskets

The gaskets submitted with the joints for test shall be of the same design and composition as furnished to the trade.

SEC. 4. Bolts

The bolts submitted with the joints shall be of the same design, construction and material as furnished to the trade.

SEC. 5. Dimensions

All essential dimensions shall be such as to accommodate pipe of standard size, subject to tolerances allowed by specifications for such pipe.

PART II. PERFORMANCE REQUIREMENTS

SEC. 1. General

a. For the purpose of these tests, joints shall be submitted in 6-inch and 12-inch sizes.

b. Tests shall be conducted using each kind of gasket to be furnished as standard equipment for the joint, the manufacturer specifying the kind of pipe in which the joint is to be furnished.

c. When joints are to be supplied in pipe differing from that originally specified, tests shall be conducted on specimens of each

separate kind of pipe, using duck tipped rubber gaskets in each case.

SEC. 2. Strength of Bolts

All bolts shall have an ultimate tensile strength of not less than four times the maximum stress, which will be produced by the application of the force in pound-inches recommended by the manufacturer for making up the joint.

Method of Test

The ultimate tensile strength of the bolts as submitted shall be determined by means of tensile tests of three samples in a calibrated testing machine. Bolts for this test shall be selected at random from those submitted with the joint.

In addition to the above test, three special bolts at least 10 inches long, of the same diameter and material, and equipped with similar threads and nuts to those regularly furnished with the joint, shall be supplied by the manufacturer. These shall be mounted individually in a testing machine in such a manner that the stress resulting from tightening the nuts by the application of the force in pound-inches recommended by the manufacturer may be measured. The average stress obtained from tests on the three samples shall be not greater than one-fourth of the average ultimate tensile strength obtained above. Bolts of the length indicated are necessary for this test, since many of those usually supplied with mechanical joints are too short to be readily accommodated in a standard testing machine.

SEC. 3. Leakage

a. A joint shall not leak when restrained to prevent movement.

Method of Test

Two specimens shall be prepared in the manner shown in the Appendix, using the specimens shown in Fig. 1. Each shall be tested as follows:

The ends of the specimen shall be restrained to prevent movement of the joint and the specimen shall be subjected to 150 pounds per square inch internal air pressure 24 hours after the joint has been made up. The joint shall show no leakage when soapsuds are applied.

b. A joint shall not leak when subjected to repeated longitudinal movement.

Method of Test

Two specimens, as shown in Fig. 1, shall be prepared in the manner outlined in the Appendix. The specimens shall be permitted to remain without disturbance for a period of from 16 to 24 hours before testing. Each shall be tested as follows:

The specimen shall be placed in a suitable testing machine in such a manner that the joint may be alternately elongated and compressed definite amounts. The apparatus shown in Fig. 1 is suggested for this work.

The joint shall be first placed in tension until a joint movement of 1/32 inch is

secured. Compression shall then be applied to restore the joint to its original position. These movements shall be repeated until five cycles have been completed. The movement shall then be increased to 1/16 inch. A total of 40 cycles shall be made upon the specimen as follows:

- 5 cycles at 1/32 inch movement
- 5 cycles at 1/16 inch movement
- 5 cycles at 3/32 inch movement
- 5 cycles at 1/8 inch movement
- 5 cycles at 3/16 inch movement
- 5 cycles at 1/4 inch movement
- 5 cycles at 3/8 inch movement
- 5 cycles at 1/2 inch movement

An internal air pressure of 100 lbs. per sq.in. shall be maintained on the joint throughout the test and it shall be observed for leakage by the constant application of soapsuds.

c. A joint shall not leak when subjected to repeated deflections.

Method of Test

Two specimens, as shown in Fig. 2, shall be prepared in the manner outlined in the Appendix. The specimens shall be permitted to remain without disturbance for a period of 48 hours before testing. Each shall be tested as follows:

A specimen with the ends properly capped and restrained in a manner similar to that suggested in the Appendix shall be placed horizontally in a suitable testing machine in such a manner that the specimen rests across knife edges, spaced five feet apart, with the joint in the center. The load shall be applied in a sufficient amount to deflect the specimen 1 inch at the center in the case of a 6-inch joint and 1/2 inch in the case of a 12-inch joint. The load shall then be released and the specimen rotated through 180 degrees and again loaded until the specimen becomes straight before starting measurement on the next deflection. The specimen shall be given a total of four deflections to the amount given above.

Internal air pressure of 100 lbs. per sq.in. shall be maintained on the joint throughout the test and it shall be continually observed for leakage by the constant application of soapsuds.

SEC. 4. Flow of Gasket Material

A gasket shall not show evidence of excessive change of shape upon removal from a joint.

Method of Test

Two specimens shall be prepared in duplicate in the manner outlined in the Appendix, using the specimens shown in Fig. 1. The type of gasket to be used for this test shall be selected from those regularly furnished by the manufacturer. The joints shall be permitted to stand without disturbance for a period of 48 hours. The gaskets shall then be removed and sectioned immediately at two points where the maximum distortion is observed. Each section

(Continued on page 83)

Appliance and Equipment Developments

Gravity Gas Furnace

The Meyer Furnace Company, Peoria, Illinois, has recently placed on the market a gravity gas furnace which is described in a pamphlet now being distributed. The furnace is all steel and has removable return-air panels. Other features are double cast iron burners, automatic gas valve, safety pilot, overhead dehumidifier, lead-coated down-draft diverter and asbestos-concrete composition insulated casing. The furnace is approved by the American Gas Association.

Shielded Arc Electrodes

An 8-page leaflet describing Aircor's Shielded Arc Electrodes, Nos. 78, 79 and 81, was recently distributed by the Air Reduction Sales Company, 60 East 42nd St., New York City. No. 78 is recommended for flat welding while No. 79 is for vertical and overhead work. No. 81, a heavily coated electrode for flat welding only, has an elongation which runs about 5% greater.

Streamline Ranges

Tinnerman Stove and Range Company, Cleveland, Ohio, has contributed two new streamline models to gas range design and construction. One of the outstanding features of the new Tinnerman models is the introduction of a burner which is so constructed that it will not clog due to "boilovers." Some of the burners are equipped with automatic simmer flame controls. Another innovation is the introduction of a "piano stool" rotary broiler that can be raised and lowered without stooping.

Appointed Sales Manager

N. M. Blanchard has been appointed western sales manager for L. J. Mueller Furnace Company, Milwaukee, Wisconsin, according to announcement by the company. This involves the northern tier of states between Minneapolis and Salt Lake City, with headquarters in Omaha.

Mr. Blanchard has been connected with the company for eleven years; 1924-1932 as territorial salesman and 1932-1934 as Omaha branch manager.

Establishes Pacific Coast Headquarters

The Worthington Company, Incorporated, has recently established a Pacific Coast regional headquarters at Los Angeles. C. E. Wilson, vice-president, is in charge of the Pacific Coast Division which includes district offices in Seattle, San Francisco, El Paso, and Los Angeles.

A new development announced by the Worthington Pump and Machinery Corporation, Harrison, N. J., is its 2 stage MONOBLOC centrifugal pump. Accord-

Contributions of news items by manufacturers of gas appliances and equipment to this department will be welcomed by the A. G. A. MONTHLY. On account of space limitations, all announcements of new products, improvements, etc., should be limited to about 100 words. No attempt will be made to give details of construction. For such details address the manufacturer direct. All contributions to this department should be addressed to C. W. Berghorn, Secretary, Manufacturers' Section, American Gas Association, 420 Lexington Ave., New York, N. Y.

ing to the manufacturer, the low power requirements and simplicity make this unit especially applicable to all services requiring small capacity and medium discharge head.

Consolidation

Two of the largest firms in the temperature control field recently united when the Minneapolis-Honeywell Regulator Company of Minneapolis became affiliated with the Brown Instrument Company of Philadelphia. The Brown Instrument Company will continue as a separate unit with its present organization with Richard P. Brown as president, but will be operated as a subsidiary of Minneapolis-Honeywell.

Basmor Boilers

An attractive architects' and engineers' handbook, describing the Basmor gas-fired boilers for steam, vapor and hot water heating systems, has just been released by the Bastian-Morley Co., La Porte, Indiana. This boiler is distributed nationally by Crane. The booklet contains a complete description of the Basmor boilers supplemented with data tables and other helpful information. The boilers are approved by the A. G. A. Testing Laboratory.

Console Heater

The Payne modern console heater, recently developed by the Payne Furnace and Supply Company, Beverly Hills, California, is designed for use with natural, manufactured, propane or butane gas, according to the manufacturer. The heater circulates warm air through a built-in-multiple heating element instead of throwing off heat by radiation. It is so designed that all mechanical and operating parts are enclosed within the cas-

ing. It is approved by the A. G. A. Testing Laboratory.

Internal Gas Furnace

Sioux City Foundry and Boiler Company, Sioux City, Iowa, announces the development of a new internal gas furnace, the Gas Furnace Konvertor, which is designed to convert the ordinary coal furnace to gas fuel. Some of the advantages of the new unit, according to the manufacturer, are low pilot consumption, ease of assembly, and a quick heat pick up.

Relief Valves

The Patrol Valve Company, Cleveland, Ohio, is distributing a folder describing temperature and pressure relief valves for domestic hot water supply systems. Pressure relief is brought about by the action of a unit consisting of a stainless steel spring and a hexagonal brass plunger. Pressure adjustment in each device is concealed to prevent tampering.

Cements

Thiokol Corporation, Yardville, N. J., is offering another line of products which are designated as Thiokol C Cements. These products are rubber-like cements which, upon evaporation of the solvent, leave elastic films that are oil proof and unaffected by most of the ordinary solvents. They are highly resistant to moisture, sunlight, oxidation and ozone, according to the manufacturer.

American Meter Appointment

The American Meter Company has announced the appointment of A. McW. Wolfe as assistant manager of its Boston factory, The Nathaniel Tufts Meter Works.

A graduate of Johns Hopkins University, Mr. Wolfe entered the employ of American Meter Company with the Maryland Meter Works in Baltimore immediately after the war in 1919.

Triple Duty Range

A new Trip-L-Duty Spark gas range is being marketed by Hammer-Bray Company, Oakland, Calif. This range, according to the manufacturer, not only cooks the food, but also burns trash and heats the kitchen and adjacent rooms. It has connected load of 100,000 B.t.u.'s per hour, according to the maker.

Vaughn Joins Spencer

Spencer Thermostat Company, 34 Forest Street, Attleboro, Mass., has announced that Victor C. Vaughn, well-known electrical engineer, has joined the company.

Monthly Summary of Gas Company Statistics

For Month of November, 1934

Issued January, 1935, by the Statistical Department of the American Gas Association
420 Lexington Avenue, New York, N. Y.

PAUL RYAN, Chief Statistician

COMPARATIVE DATA ON THE MANUFACTURED AND NATURAL GAS INDUSTRY FOR THE MONTH OF NOVEMBER

	Month of November			Eleven Months Ending November 30		
	1934	1933	Per Cent Change	1934	1933	Per Cent Change
<i>Customers</i>						
Domestic (Including House Heating).....	14,921,800	14,597,400	+ 2.2	See November		
Industrial and Commercial.....	760,800	745,700	+ 2.0			
Total	15,682,600	15,343,100	+ 2.2			
<i>Revenue (Dollars)</i>						
Domestic (Including House Heating).....	42,330,400	42,787,000	— 1.1	462,852,200	465,334,300	— 0.5
Industrial and Commercial.....	15,933,500	15,084,300	+ 5.6	168,826,900	151,294,100	+11.6
Total	58,263,900	57,871,300	+ 0.7	631,679,100	616,628,400	+ 2.4

COMPARATIVE DATA ON THE MANUFACTURED GAS INDUSTRY FOR THE MONTH OF NOVEMBER

<i>Customers</i>						
Domestic	9,487,900	9,355,400	+ 1.4	See November		
House Heating.....	114,700	78,300	+46.5			
Industrial and Commercial.....	441,800	437,100	+ 1.1			
Miscellaneous	8,700	9,000	—			
Total	10,053,100	9,879,800	+ 1.8			
<i>Gas Sales (MCF)</i>						
Domestic	19,896,500	20,254,400	— 1.8	221,892,800	223,524,000	— 0.7
House Heating.....	2,969,400	2,483,500	+19.6	24,892,700	17,120,200	+45.4
Industrial and Commercial.....	7,190,500	6,442,500	+11.6	79,744,100	67,285,800	+18.5
Miscellaneous	190,000	201,600	—	1,954,900	1,871,600	—
Total	30,246,400	29,382,000	+ 2.9	328,484,500	309,801,600	+ 6.0
<i>Revenue (Dollars)</i>						
Domestic	24,328,700	24,709,000	— 1.5	270,680,500	274,139,800	— 1.3
House Heating.....	1,945,500	1,644,200	+18.3	16,543,800	12,261,600	+34.9
Industrial and Commercial.....	5,662,500	5,475,900	+ 3.4	61,564,900	58,569,400	+ 5.1
Miscellaneous	130,900	131,400	—	1,373,800	1,396,300	—
Total	32,067,600	31,960,500	+ 0.3	350,163,000	346,367,100	+ 1.1

COMPARATIVE DATA ON THE NATURAL GAS INDUSTRY FOR THE MONTH OF NOVEMBER

<i>Customers</i>						
Domestic (Including House Heating).....	5,319,200	5,163,700	+ 3.0	See November		
Commercial	281,700	274,600	+ 2.6			
Industrial	26,700	23,200	+15.1			
Miscellaneous	1,900	1,800	—			
Total	5,629,500	5,463,300	+ 3.0			
<i>Gas Sales (MCF)</i>						
Domestic (Including House Heating).....	23,353,500	23,837,900	— 2.0	254,212,700	255,979,800	— 0.7
Commercial	4,635,800	4,717,000	— 1.7	48,713,800	46,734,200	+ 4.2
Industrial	49,982,600	45,035,500	+11.0	515,265,900	424,173,500	+21.5
Miscellaneous	996,600	802,700	—	11,001,600	7,568,000	—
Total	78,968,500	74,393,100	+ 6.2	829,194,000	734,455,500	+12.9
<i>Revenue (Dollars)</i>						
Domestic (Including House Heating).....	16,056,200	16,433,800	— 2.3	175,627,900	178,932,900	— 1.8
Commercial	2,110,500	2,115,700	— 0.2	22,364,200	21,773,400	+ 2.7
Industrial	7,873,300	7,219,000	+ 9.1	81,772,000	68,245,500	+19.8
Miscellaneous	156,300	142,300	—	1,752,000	1,309,500	—
Total	26,196,300	25,910,800	+ 1.1	281,516,100	270,261,300	+ 4.2

November Gas Revenues

REVENUES of manufactured and natural gas utilities totalled \$58,263,900 in November, an increase of 0.7 per cent from the figure of \$57,871,300 reported for November, 1933.

Revenues of the manufactured gas industry aggregated \$32,067,600 for the month, an increase of 0.3 per cent. The natural gas utilities reported revenues of \$26,196,300, which were 1.1 per cent above the figures for November, 1933.

Sales of manufactured gas reported for November amounted to 30,246,400,000 cubic feet, an increase of 2.9 per cent, while natural gas utility sales for the month were 78,968,500,000 cubic feet, an increase of 6.2 per cent.

While sales of manufactured gas for domestic cooking, water heating, refrigeration, etc., continued to run about 1.8 per cent below a year ago, sales for house-heating purposes registered a sharp gain, amounting to 19.6 per cent over the preceding year. Manufactured gas sales for industrial-commercial uses were also above those of a year ago by 11.6 per cent.

PIPE JOINTS

(Continued from page 80)

shall then be compared with one cut from a new gasket. Any evidence of excessive change of shape or undue distortion of the gasket section shall be cause of rejection.

APPENDIX

PREPARATION OF JOINT

The gasket shall be thoroughly cleaned of bloom or other deposits before its introduction into the joint. The gasket recess shall be thoroughly wetted with soapsuds before the gasket is inserted. When bolts are used they shall be drawn up successively on alternate sides of the joint until the force necessary to rotate each nut is approximately that recommended by the manufacturer.

Joints, which obtain compression of the gasket by some means other than bolts, shall be assembled in the manner recommended by the manufacturer.

The joints shall not be disturbed between the time they are made up and the time they are tested.

Booklet Describes Gas Lamps

AN attractive booklet describing the Humphrey super candle power gas lamp, containing installation data and illustrations, has been released by the General Gas Light Company, Kalamazoo, Michigan. The opening pages of the booklet are devoted to a reproduction of the paper on Gas Flood Lighting presented by W. M. Blinks before the last A. G. A. Convention.

Other contents include illustrations of gas office lighting, and service station

lighting and a description of the various Humphrey gas lamps and lamp posts. One chapter describes the design, construction, and operation of the new gas lamps. This is followed by installation data, a cross section drawing and candle power curves.

Natural Gas and Petroleum Codes

THE Natural Gas Code Committee has agreed with the National Industrial Recovery Administration to recommend to the industry a modification of the pending natural gas code so that the minimum wages and maximum hours for rig building and well drilling, but not operation, in natural gas fields shall correspond to the minimum wages and maximum hours for the same classes of employees as specified in the petroleum code. The Code Committee has further agreed that pending final disposition of the natural gas code the above suggested modification shall apply to the President's Reemployment Agreement as modified under which the natural gas industry is now operating.

Dana Pierce Dies

ANNOUNCEMENT has been made of the death on December 18, 1934 of Dana Pierce, president of the Underwriters' Laboratories, Chicago, Ill.

Hotel Range Campaign

THE gas companies and restaurant equipment firms serving the Los Angeles metropolitan area are participating in a campaign to sell modern gas-fired hotel ranges. Inducements are; no down payment, 18 months to pay, and an allowance for the old range amounting to 25 per cent of the price of a new range of equivalent size. A display of gas hotel and restaurant equipment is maintained in the Los Angeles Gas and Electric Corporation building.

—P. C. G. A. News Letter.

Smoke Peril Reduced

THE Mellon Institute Laboratories report progress in the elimination of smoke and soot from air in and around large cities, especially in the Pittsburgh—Cleveland—Youngstown industrial districts.

The problem of controlling polluted air, which has confronted most American cities for decades, is gradually being overcome, and improvement is being noted at this time more than ever before, according to H. B. Meller and L. B. Sisson, who are conducting the air investigation. Gas sales and the use of coke and low temperature carbonized coal, all smokeless, are all gaining, they said.

This investigation is in line with the housing program, which demands cleaner urban air in sections of some cities, and which, by construction of the new home heating plants, will also help to provide cleaner air.

New home designers are urged to work in cooperation with the smoke regulation authorities in their efforts to eliminate the smoke menace. It has been found that slight changes in design of new homes, different types of chimneys, fuel-burning apparatus or different fuel can be made to keep the air cleaner.—United Press.

Meter Display



IN an endeavor to acquaint its customers with the operation of the gas meter, The Peoples Gas Light and Coke Company, Chicago, maintains a display booth on the main floor of its office building on Michigan Avenue.

The card located above the gas range, shown in the accompanying illustration, reads as follows:

"Turn on the burner: See how the gas meter works as you control the height of the flame. Your gas meter is one of the most accurate and yet simplest of measuring devices."

The glass-encased gas meter is hooked up to one of the latest models of ranges sold by the company and by turning on one of the valves of the range a customer can obtain a close-up view of the gas meter in operation and at the same time check up on the amount of gas used by the burner.

Reaction of the public to the display has been distinctly favorable.

Personnel Service

SERVICES OFFERED

Successful **Industrial Gas Engineer** desires position where a large potential market awaits progressive efforts and where results will be rewarded. Twenty-three years' experience Natural and Manufactured gas. Thorough knowledge all phases industrial applications, from steam boiler to steel mills. 895.

Industrial Sales Engineer desires employment with Eastern Utility. Specialized in Sales Management, Service and Maintenance of House Heating Department, Industrial Steam Boilers and Large Volume Water Heating. Broad experience. Married. 897.

Engineer, now employed offers manufacturer or utility ten years' experience all phases of heating and air-conditioning; designing, manufacturing, patents. Background 7 years' technical college faculty, national society committee activities, writing, and speaking; wide acquaintance in the industry. 898.

Experienced **gas appliance salesman** (28), married, with good education, is desirous of locating with a public utility as sales supervisor or as district representative for a manufacturer. Have had experience in both ends. Prefer eastern states, but will go anywhere. Can furnish best of references. 904.

Technical graduate (29) (B.S. and M.S. in Mech. Engr.) four years' utilization, distribution and construction experience with large natural gas system; married. 905.

Experienced **gas range engineering** executive wishes to affiliate with reliable manufacturer. Capable of taking complete charge of design and experimental, laboratory departments, factory methods and correcting production problems. 908.

Gas Appliance Salesman with ability to organize selling force, supervise, create selling plans and methods and conduct any territory in a judicious manner. Conversant with methods used in contracting wholesale and retail trade, also utility companies. 910.

Industrial Gas Sales Representative (43). Adjusting, repairing, designing and selling appliances and burners to every industry. Manufacturer and gas utility experience, domestic and industrial. Married. 912.

Engineer, broad experience in production, distribution, accounting and management; analysis distribution systems and preparation immediate or future extensions; making and testifying to inventories and valuations in rate and tax cases. Qualified install continuous inventory. 913.

Salesman, electrical products (30), married, graduate electrical trade school. Eight years' experience New York City selling electrical appliances, specialties and material to industrials, public utilities, chain and department stores, realty companies, banks, jobbers and retailers. Also experienced sales promotion and missionary work. 914.

Gas Engineer or Superintendent, college graduate, thoroughly experienced in the gas industry, including coal, water and oven gas manufacture, natural gas conversion work, pipe line construction maintenance and metering, high- and low-pressure distribution, also selling, installing and maintenance of house heating equipment. 915.

Gas Engineer, 20 years' practical experience in all branches—manufactured and natural gas—holding company experience—highly successful in improving operating and distribution conditions. Recognized expert in federal court and commissions on appraisals and gas company operations. 917.

Graduate Engineer, eight years' experience Public Utility operation and financing. Operating experience all types manufactured, natural gas, electric, water, ice companies. Financial experience organization new and reorganization of old companies. 918.

Junior Statistician, 10 years' experience public utilities. Versed in statistical routine, special reports, unit costs, special studies, preparation of forms in reporting or summarizing balance sheet, operating revenue and operating expense items, graphical presentation of results, reports for trade associations, Federal Trade Commission, etc. 919.

Executive Manager (39). Technically trained university man; 18 years' experience available due consolidation of gas & electric properties. Broad experience, covering all phases of industry. Especial attention to Sales Promotion & Public Relations. 920.

SERVICES OFFERED

Exceptional experience as **Key Man** to executives suggests there is a similar position where knowledge of controlling corporate, financial, and legal requirements of corporations of different states, together with security sales promotion, modern budgets and statistical interpretation has a place. Can fully substantiate above at interview. 921.

Personnel Director with deep convictions on value of public relations and employee's education, believing that a correctly informed public is a friendly public, that better trained employees insure stability and profits; all possible with low overhead. Have had ten years' experience in one of America's largest utilities. Good references. 922.

Accountant-Auditor, twenty years' diversified experience, home and abroad, on gas and oil, railways, foundries, sugar mills, general construction and bus transportation; five years last position handling consolidations, mergers and reorganization. Good personality. speaks and writes Spanish fluently. 923.

Salesman thoroughly seasoned in domestic and industrial appliances with refrigeration a specialty, seek connection eastern or mid-west company. Fourteen years' experience all phases of appliance merchandizing—cold canvass, new business manager—advertising—cooking schools, married (38). 924.

Young (24) wide awake, conscientious and ambitious. Five years' experience in analysis of utility operations, including sales and promotional activities plus three years' university training in advertising. Should fit well in advertising department of operating company, holding company, or manufacturer advertising agency. Single. 925.

Salesman (35) 14 years' appliance experience with a background of both utility merchandising and manufacturer representative of ranges and space heater experience. Wishes to connect with reputable manufacturer to contact utility and dealer trade; well acquainted with Midwest. 926.

General Office Worker (37) principally pay roll preparation, auditing and paymaster with large industrial organizations. Now employed and studying accounting at university night course; seeks change. 927.

Executive engineer-accountant and commercial sales manager desires connection. Thorough experience with all branches of utility operation and new business promotion. Good public relations experience. Location no object. Thorough statistician—accountant. 928.

Engineer-Secretary of gas and electric association in important progressive state. Has combined engineering, statistical and general organization and promotional work with appearances before committees, commissions and various types of audiences. Thoroughly familiar with state regulation and procedure, employee training, customer and trade relations work; available short notice. 929.

Sales-New Business manager: Extensive training, experience initiating, directing advertising, publicity, sales campaigns; developing costs, rates, selling prices; supervising salesmen, commercial, public relations; outstanding record as industrial gas and power engineer; resourcefulness and ability to meet and solve new problems; highest credentials; salary secondary to connection offering good future prospects. 930.

Engineer—Eleven years in gas industry. Familiar with manufacture and distribution large system, both high and low pressure. Experienced in making investigations and unusual tests; have proficient understanding of burner design and combustion. Well fitted for Superintendent or Manager. 931.

Editor and Writer. Qualified for research, editorial work, writing, in business field. Have written correspondence courses and edited technical as well as general business material. Executive experience. 932.

Gas Engineer, three years' experience in Latin America, understanding Spanish and thoroughly trained in manufacture, distribution, sales promotion, customer and industrial relations wishes connection with company operating in Latin America. 933.

Advertising Man (29), experienced in gas utility field. Competent advertising manager for smaller company or manufacturer or will fit well into a department. Copy writing, layout and publicity experience. Thorough knowledge of mechanics of production. Recommendation from previous employer. Record will stand closest scrutiny. Married. 934.

SERVICES OFFERED

Sales Manager—sales promotion manager—**salesman**—competent, aggressive, experienced,—for gas company or manufacturer wanting successful sales. Appliances, gas merchandise, gas distribution supplies, plumbing, heating specialties. Twelve years' effective selling, promoting, advertising, managing volume sales for leading specialty manufacturers. National gas company executive, jobber and consumer contacts. Mature college man. 935.

University graduate, woman (College of Architecture) desires position in **kitchen planning** or related work; course in architectural design completed June 1934. Sketches supplied upon request. 937.

Chemical Engineer, now employed; 10 years' thorough experience in carburetted water gas plants. Familiar with latest equipment and processes including heavy oil operation, tar dehydration and gum control. 938.

Mechanical Engineering Graduate (1934) desires position with engineering or manufacturing concern. Has ability to carry out instructions or use initiative as desired; realizes must earn a profit for his employer. 939.

Manager with long experience in handling properties having up to 3500 meters, desires change. Can furnish desired references. Now employed. Has operated natural gas property for past five years. 940.

Utilization and Sales Engineer; long experience New York metropolitan area and adjacent vicinity in house heating, industrial water heating and restaurant work; also testing and installation. Well acquainted with gas companies, commercial outlets, architects and others in district mentioned. Have worked for gas companies and manufacturer of gas appliances. 941.

An Elastic Column

The space devoted to "Positions Open" immediately below may be expanded with the greatest of ease. A glutton for punishment it can absorb far more than the healthy blows it has already received this year. The expression, bearing and mental outlook "before" and "after" the family man lands a job is a rare privilege to witness.

Tell us about your vacancies and let us tell the industry.

POSITIONS OPEN

Gas Range Equipment Designer. Experienced with tool equipment and assembly of gas ranges, also knowledge of drafting board. Good opportunity for advancement. Write full details of experience, references and salary expected. 0282.

Local manager wanted for small water gas plant. Sales and collection ability of primary importance, but applicant must have had actual experience and be able to get results as plant operator. Small plant experience essential. 0283.

Manufacturer of combination new radiant type broiler, griddle and toaster, launching national sales program, desires **state representative** with distributor dealer franchise ability. Prefer those who are now representing other similar lines, or with past successful sales experience. Here is a real item at a real price with a liberal sales commission. Please give complete information in your application. 0284.

Utilization Engineer with wide knowledge of gas burner design and actual experience in the design, application and installation of gas burning equipment to central heating, steam raising and other industrial uses; must have had natural gas experience. Eastern location. 0285.

An old, established concern having a complete line of gas fired boilers and furnaces desires high class **representation** in eastern, southern, and central territory. Will be interested if your lines are non-competitive. 0286.

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 Sec.-Tr.—Frank B. Maullar, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association

Pres.—H. B. Cobban, Northeast Oklahoma Railroad Co., Miami, Okla.
 Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

Pacific Coast Gas Association

Pres.—William Moeller, Jr., Southern California Gas Co., Los Angeles, Calif.
 Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association

Pres.—T. W. McDonald, Pennsylvania Gas & Electric Co., York, Pa.
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Pennsylvania Natural Gas Men's Association

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The Public Utilities Association of Virginia

Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association

Pres.—G. V. Rork, Northern States Power Co., Eau Claire, Wis.
 Exec. Sec.—A. F. Herwig, 135 West Wells St., Milwaukee, Wis.

AMERICAN GAS ASSOCIATION, Inc.

HEADQUARTERS, 420 LEXINGTON AVENUE, NEW YORK, N. Y.

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